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ABSTRACT

The Urban Mathematics Collaborataive (UMC) project has the goal of contributing to the improvement of mathematics education in the inner-city schools by identifying models to enhance the professional lives of teachers and encouraging the entry of high school mathematics teachers into a larger mathematics community including mathematicians from higher education and industry. This guide shares some of the insights and the instruments that were created to document the benefits of the project and to help the UMC Collaboratives to carry on their own documentation efforts. The guide contains five sections. Section I describes the UMC project and the rationale for the guide. Section II explains why documentation is important, and distinguishes it from evaluation. Section III sets guidelines for establishing a documentation plan. Section IV gives an overview of the UMC documentation project that includes methods of data collection, a detailed description of suggested monthly reports, a description of the electronic network linking the collaboratives, large-scale surveys, demographic surveys, site visits, special UMC functions, and case studies. The Appendixes include monthly report forms, sample evaluation forms for activities, questions from the Diary of Professional Relationships, large-scale surveys, and demographic surveys. (MDH)

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May 1991
Program Report 91-2

The UMC Guide to Documentation

Susan D. Pittelman, Norman L. Webb, Elizabeth M. Fadell, Thomas A. Romberg, Allan J. Pitman, and Marilyn Sapienza

**A Report from
the Urban Mathematics Collaborative (UMC) Documentation Project**

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Wisconsin Center for Education Research
School of Education, University of Wisconsin–Madison

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THE UMC GUIDE TO DOCUMENTATION

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Report of
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Wisconsin Center for Education Research
School of Education
University of Wisconsin
Madison, Wisconsin

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The UMC Guide to Documentation is dedicated to the

On-Site Observers

of the

Urban Mathematics Collaborative Documentation Project

for their willingness to ask questions so that

others may learn from the answers.

* * *

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I. INTRODUCTION

Documentation plays a key role in the growth and development of a project. It provides an opportunity to collect data and to synthesize the information in a way that will guide the further development and management of the project. Documentation provides a basis upon which project participants can make informed decisions by using the information that has been collected, become reflective through self-analysis of the data, and promote project goals and accomplishments by sharing the reports of what it does.

The Ford Foundation initiated the Urban Mathematics Collaborative (UMC) project in 1985 to improve mathematics education in inner-city schools and to identify new models for meeting the ongoing professional needs of teachers. Between February, 1985, and September, 1986, the Foundation awarded grants totaling over $6 million for the establishment of mathematics collaboratives in eleven urban sites: Cleveland, Durham, Los Angeles, Memphis, Minneapolis-St. Paul, New Orleans, Philadelphia, Pittsburgh, St. Louis, San Diego, and San Francisco.

The Urban Mathematics Collaborative (UMC) Documentation Project, under the direction of Professor Thomas Romberg at the University of Wisconsin-Madison, fulfilled an important role in the UMC project through collecting, managing, and interpreting data to record the development and operation of each of the collaboratives, and by providing a broad perspective of the UMC project as a whole. The high value placed on documentation over the five years of the project was a significant factor in tracking the success of the individual collaboratives and integrating their achievement into a coherent record of the total UMC project.

Documentation of the UMC project began during the earliest planning phase and continued throughout the evolution of each of the eleven original collaboratives. Although formal data collection by the UMC Documentation Project ended June 30, 1990, the need for documentation continues, as each project works to sustain its momentum independent of Ford Foundation funding.

During the documentation process, the staff of the Documentation Project has been enriched by the diversity and commitment of the Urban Mathematics Collaboratives. We have developed a more thorough understanding of documentation procedures and gained a greater appreciation for the importance of thorough documentation. In the process, we have created a number of instruments for collecting data.

This guide has been created in order to share some of the insights and the instruments that have evolved out of this five-year project. Our motivation for developing the guide derives not only from the value that we place on documentation and our strong belief in the benefits that a project can gain during the documentation process, but from requests on the part of the collaboratives for guidelines to assist them in carrying on their own documentation efforts. It is our hope that the discussion and information that follows will provide that guidance.

II. WHY DOCUMENT?

Documentation provides a comprehensive record of a project's history, development, decisions, and impact. As a result of this information base, it fosters insight into the processes that produce change, the impediments that block progress, and outcomes. It is the documentation process that generates the hard data necessary to review and to evaluate a project's components and to study their relative effectiveness.

Incorporating a documentation component signifies a firm commitment to the project's value and indicates that participants recognize the project's worth and the importance of maintaining a historical record. Documentation can be used as a management tool, making information accessible that is valuable for decision making. This helps to ensure that past mistakes are not repeated and that beneficial outcomes are noted.

The information collected through documentation can be of benefit to the collaborative's administration or governing bodies in making decisions regarding the collaborative's target audience, the needs of the teachers, the development of the project budget, and the formation or restructuring of committees, as well as in measuring the success of activities and determining how programs may improve to better meet the needs of teachers. The information can also serve as a basis for reviewing the project's accomplishments, evaluating its progress in light of its goals, and determining the future course of action. The documentation component also plays an important role in responding to the reporting requirements of funding agencies.

An essential component of documentation is synthesizing the information gathered into a written history, or an annual progress report, to provide a complete picture of a project's development over the course of an entire year. The very process of creating an annual report forces collaborative members to review and to reflect on what happened during the year and to try to put these events into perspective. Furthermore, a series of annual reports provides a complete written history of a project's development. The availability of a narrative report that provides information about the collaborative from the time of its establishment has been especially valuable when major changes in collaborative staffing have occurred. The Annual Reports to the Ford Foundation provided an historical base as well as perspectives for the use of new collaborative administrators. In addition, because changes may occur slowly over time, a series of annual reports provides a project with an opportunity to trace the development of a key initiative or outcome from its beginning. An important element in collaboration is sharing information with others. Because of the number of groups involved in a collaborative effort, keeping everyone informed and cultivating the interest of potential participants can be a large undertaking. Not only do the Annual Reports provide a tool that is useful for self-evaluation, but they can serve as a vehicle for disseminating information to the business and higher education communities and to the media, as well as to other boards or groups. The dissemination of information about a collaborative serves to strengthen the community support that the project receives.

Documentation Versus Evaluation

In the context of a documentation plan, a distinction is frequently made between documentation and evaluation. Rather than being seen as two distinct procedures, documentation and evaluation actually can be considered as different points on a single continuum. Documentation establishes a record that serves as the basis for understanding what is occurring within a more historic context. The emphasis in documentation is on providing a comprehensive picture, whereas evaluation is used to judge and place a value on what has happened. When an individual begins to step back to make judgments and to determine whether a project is meeting its goals, the fine line between documentation and evaluation is crossed. Both documentation and evaluation have been important to the development of successful collaboratives in that each provides information that is critical in making decisions about the future as well as substantiating requests for new or continued funding and support.

Documentation involves collecting a wide variety of data, through both formal and informal methods. The information collected is then synthesized and used to develop an understanding of the project's evolution and function. Part of the record that a documenter maintains on a project may be drawn from studies designed by others to evaluate the project. Topics that have been addressed in studies conducted by evaluators of specific collaboratives have included: the collaborative's success in meeting goals, the effectiveness of individual programs, collaborative impact, and student outcomes that can be attributed to the collaborative. While this type of information is useful for documentation purposes, it provides only a small part of the overall picture. A key focus of the documentation effort is to probe beneath the surface for candid perceptions from participants about the collaborative to try to determine whether the collaborative is meeting their needs and expectations. Granted, this is very difficult to do and can be accomplished only if there is trust between the documenter and the members of the collaborative project. Comfortable and productive exchanges will not occur if the documenter is perceived as making judgments about what is said or done. Teachers will be reluctant to open their classrooms to an observer if the observer is perceived as an evaluator rather than a documenter. The open expression of feelings about the internal process and the motivational forces acting on both project members and nonmembers, as well as the willingness to reveal weaknesses, will be shared only if it is believed that the documenter is trying to understand and report, rather than to judge what is being done.

Making a Commitment to Documentation

Although potentially expensive, the documentation process can be made both efficient and cost effective. The most important condition of success is a strong level of commitment to the project's Documentation Plan on the part of both the collaborative administration and its formal governing bodies. This Documentation Plan should include (1) the goals of the documentation effort, (2) the areas to be documented and the sources from which the information will be gathered, (3) a description of the personnel who will oversee the documentation effort and who will collect the information; (4) the procedure for formalizing the documentation, (5) the method for storing and accessing the information collected, (6) the process through which the information will be synthesized into an annual report, and (7) the procedure for evaluating the Documentation Plan to determine whether the collaborative is collecting the information that it needs.

III. ESTABLISHING A DOCUMENTATION PLAN

Ideally, the original proposal to create a collaborative would include a plan for documentation. Even in cases in which a collaborative has been in operation for a year or longer, it is advisable to develop a Documentation Plan. The first step in establishing the Documentation Plan is to identify clearly the purpose of the documentation effort and to set realistic goals for achieving it. The more explicitly articulated the reasons for documentation, the more responsive the documentation effort can be to the collaborative's needs. It is important that the goals established for the process reflect the needs of the people who will be using the information and the way in which they will use it.

What to Document?

Identifying the purpose of the collaborative's documentation effort will serve as a guide in determining what information to collect and how to collect it. It will also help in deciding how the information should be organized after it has been collected. If the collaborative is receiving funds from an agency that requires regular progress reports, the funder's requirements must be taken into consideration when the documentation procedures are established. For example, an agency may require information on the project's impact on teachers by grade level (i.e., elementary, middle school, high school). Consequently, a report on the number of people who have attended project-sponsored events should include a breakdown of participants by the grade level they teach, thereby affecting the type of data that will need to be collected.

Unfortunately, it is not possible to anticipate all information needs ahead of time, nor is it possible to identify in advance all of the uses for the information being collected. Sometimes, a need for specific information will arise that was not anticipated. For these reasons, the Documentation Plan should be as comprehensive as possible, within the constraints of the time and money available.

After the purpose of the documentation effort has been defined, the next step is to develop sources of information. A plan for basic documentation should encompass three main areas: (A) the context in which the collaborative project is developing, (B) project development and management, and (C) collaborative activities. Implementing the Documentation Plan involves collecting data continuously throughout the life of the project in order to describe what is happening within the project as well as what is occurring in the surrounding context that may affect the project.

A. Context

Each collaborative is influenced by the community in which it exists. It is therefore important to understand community context to get a clear understanding of the collaborative itself. It is quite common for political, economic, or social changes in the area to have an effect on the collaborative. The arrival of a new school superintendent, for example, can have a direct impact on the working environment of district teachers and students, as well as on the district's mathematics program. Furthermore, in many school districts, the superintendent is instrumental in determining the level of the school district's financial or in-kind contributions to the collaborative. The election of new members to a school board can have a similar impact. The adoption of a school district budget, the negotiation of a new teacher contract, or the initiation of a plan for teacher layoff, will all directly affect collaborative members, and consequently, the collaborative project itself. Some school districts in which there are Urban Mathematics Collaboratives in the process of evaluating a merger with other districts; the outcome will certainly affect the collaborative. New state legislation also can have an impact on a collaborative, whether the legislation is in regard to a change in high school graduation requirements, teacher certification, the establishment of an open enrollment policy, or a career ladder program.

Other factors that can affect a collaborative are a change in school district policy such as the structure of the school by grade level, the procedure for assigning teachers to schools, or the establishment of new mathematics initiatives. The availability of other opportunities in the community for the professional development of teachers, including the presence of an active local professional organization for mathematics teachers and programs offered by local colleges and universities, will influence the types of programs that are offered by the collaborative. Incentive award programs sponsored by community groups or area industries can make an impact on both students and teachers. Changes in major corporations located in the area can affect the collaborative, especially if a representative serves on the collaborative's governing board, or if the industry is either a source of financial support to the collaborative or has made a corporate grant to the school district. As a result of the impact of these factors on a collaborative, it is important that the Documentation Plan include a procedure for gathering ongoing information about the economic, social, political, and professional context in which the collaborative operates.

Information of importance in documenting the contextual environment of a collaborative may include, but would not be limited to, the following areas: school board elections; political issues affecting the schools; changes in administration or key staff; changes in school policy or curriculum that would affect mathematics teachers; adoption of city, school district, or other relevant budgets; election of city officials; negotiation of a new teacher contract; changes in state legislation affecting teacher certification, graduation requirements, mathematics curriculum, or the overall education of students; the opening or closing of a major industry; and the availability of professional development opportunities for teachers. Sources of this information might include newspapers; district newsletters or memos; school board minutes; newsletters from teachers unions or from professional mathematics organizations; reports from universities, businesses, district and collaborative administrators, principals, and teachers; and announcements of mathematics-related activities.

Information about the teacher and student population being served by the project, as well as about the school district(s) involved, can also be useful in developing a more complete understanding of the collaborative project. If this type of data is not readily accessible, a survey requesting formal demographic information can be sent to participating school districts. The types of information requested could consist of data on the school district including district budget information, the number and grade levels of the schools in the district, teacher and student profiles by gender and ethnicity, and student test results.

B. Project Management

The second area of basic documentation involves the development of the collaborative and its operation. It is beneficial to keep records of how the project is administered from its onset. Being able to trace a governing structure or a policy to its beginnings adds a valuable perspective when current governing structures or policies are being evaluated.

As part of documenting project management, information should be collected on each meeting of the collaborative's governing bodies as well as on all committee meetings. It should include announcements of the meeting, the agenda, minutes from the meetings of subcommittees, and copies of handouts that were distributed. Other important meetings attended by collaborative representatives should be documented as well, including key meetings with school district personnel, with funding agencies, and with members from the business, industry, or higher education communities, as well as with other members of the UMC network. An effort should be made to gather information at any meeting or gathering of people at which the collaborative is represented and during which actions are taken, through either formal discussion or informal networking, that may affect the project.

In monitoring the development of a collaborative and its project management, it is important to record information about any expansion of the target population, whether it is in terms of numbers of schools or grade levels of the teachers. The information should include why the expansion took place as well as information about specific procedures that were followed and the time frame in which they occurred. It is also important to keep a record of any solicitation or commitment of corporate funds as well as any partnerships that are established through the collaborative.

Records need to be kept of all changes in administrative staff. Information about the search and screening process for applicants to staff positions should include position descriptions. Changes in the composition or membership of a collaborative's governing board(s) also need to be noted. If members were added to a board for a specific reason--for example, as part of an effort to give teachers greater responsibility for the collaborative or to attract a new funding agency--this information should be included in the documentation. In addition, copies of documents that are key to the operation of the collaborative should be collected. Project budgets, by-laws for a collaborative governing body, proposals that the collaborative submits, or contracts into which the collaborative enters with other agencies, should be collected.

The collaborative coordinator can be a valuable source of information regarding project management and should help to ensure that the documenter is aware of and has access to developments, events, and materials that impact on the management of the project. A good working relationship between the coordinator and the documenter is extremely important; the full cooperation of the coordinator will make the documenter's work more accurate and complete.

C. Collaborative Activities

In general, documenting the collaborative's activities involves keeping an ongoing record of each activity, including what happened, when it happened, who participated, and participants' short-term as well as long-term reactions. Information about grants and scholarships that collaborative teachers receive should also be included in the record-keeping of collaborative activities.

Since it is not always clear which activities are specifically "collaborative" activities, it is recommended that documentation be provided for all events in which the collaborative or collaborative teachers played a role, whether the collaborative actually sponsored the activity or only publicized it, or simply funded teachers to attend. The activities that need to be documented may include such events as workshops, site visits, grant writing seminars, receptions, retreats, dinner meetings, teachers' attendance at regional and national conferences and institutes, school district inservices, participation in curriculum committees, summer internships, and grant offers. It is quite possible that an activity that the collaborative did not sponsor, but rather only funded teachers to attend or helped to publicize, will have a significant impact on teachers and consequently merit documentation. Therefore, when in doubt, it is better to gather the information at the risk of overdocumenting. Often it is difficult to judge the relationship of the collaborative to an activity until many months after the fact, when it is possible to look back in time and determine whether the event did in fact have an impact on collaborative members.

While the type of information that is recorded may vary with the type of activity, it is helpful to develop a form on which to record basic information. This information should include:

- the name of the activity;
- the role of the collaborative project (Did the collaborative plan, sponsor, co-sponsor, fund, publicize, and/or support participants to attend? Specify the name of the organization that sponsored the event, if the collaborative did not.);

- a brief description of the activity (topic, speaker/affiliation, date/time, location);
- the purpose of the activity;
- attendance at the event (Record the total number and include an attendance list, if available. Designate participants by affiliation, i.e., collaborative or non-collaborative teachers, by grade levels; collaborative staff; representatives from business, higher education, and the district. Who was invited? Was attendance limited and, if so, how were participants selected? Include the documenter's opinion of whether the level of attendance was as anticipated.);
- forms of compensation or support received by teachers (i.e., stipends/travel funds/registration fees, classroom materials, continuing education credit, or release time; and who paid substitutes);
- participants' immediate and delayed reactions to an activity, as well as the documenter's impressions.

The form may need to be updated periodically as the Documentation Plan is evaluated, to ensure that the necessary information is being requested. (The Activity/Conference Form in Appendix A was developed by the UMC Documentation Project to record information about events or activities.)

Gathering firsthand comments from teachers about an activity is very important. In requesting this feedback, the documenter should explain to teachers that their names are not being recorded--only their comments. In addition to obtaining teacher reactions, it is also important to solicit reactions from participants representing the business and university communities, since they often have a totally different perspective. Furthermore, it is useful to have the documenter who conducts the interviews record his or her own impressions of the event as well as his or her perceptions of the comments made by others. If the meaning of a comment is not clear, the documenter should ask the participant to clarify it, rather than to try to interpret it on an intuitive basis. The reactions of the documenters are important because their impressions provide a more complete picture of the activity from different viewpoints.

Getting feedback about an activity can, at times, be difficult. If at all possible, participants should be interviewed at the conclusion of the event or activity, while the experience is still fresh in their minds. However, if participants are unavailable for on-the-spot interviews, a telephone interview can be scheduled. Providing the documenter with a list of the names of collaborative members and their work and home telephone numbers will facilitate this effort. If at the end of the activity the collaborative distributes evaluation forms that have space for open-ended comment, the information on these forms may serve as an alternative to teacher interviews, although we have found that greater in-depth information can be gathered through personal interviews. Furthermore, it is often difficult to get people to return a completed evaluation form. Different situations will require different methods of collecting information. In general, the more direct and immediate the contact, the more reliable the data. An underlying principle in documentation is to make the process as convenient as possible for those persons who are providing the information.

For some activities, it is helpful to conduct follow-up interviews several months after the event to determine whether it had an effect on teachers' classroom instruction. It is one thing for teachers to comment at the end of a workshop that they received many good ideas they can implement in their classrooms, but quite another to learn several months later whether the impact of their experiences reached the classroom. Finally, regardless of the time frame and objectives of the documenter, it is important to let participants know why you are seeking information and how it is going to be used. This usually helps people to feel more comfortable in sharing their impressions.

In addition to recording basic information about the activity and participants' impressions, the documenter should collect related print material, such as flyers, invitations, articles in the collaborative newsletter, copies of completed evaluation forms, and a set of any materials that were distributed at the activity. Such supplementary documents help to provide a more thorough understanding of the event.

In addition to documenting collaborative activities or events, a record needs to be maintained of collaborative grant programs as well as assistance offered collaborative teachers in applying for financial support from some other agency. As in the case of documenting an activity, it is helpful to develop a special form for recording information related to grants. The type of information to be gathered might include:

- the name or type of grant;
- the source of funding;
- the purpose of the grant program;

- the total dollars available and the range of individual grants;
- the role of the collaborative project (e.g., Did the collaborative publicize the availability of the grant, or offer teachers assistance during the application process?);
- a description of the application process (Who was eligible to apply? What did teachers have to do to apply? When were the applications due? How many teachers applied?);
- a description of the selection process (Who selected the winners? What were the criteria? When were the awards announced?);
- grant award information (How many teachers received grants and what were the amounts received? What were the foci of the winning proposals?);
- the immediate reactions of grant recipients (How did the collaborative assist in the grant award process? What will the grant be used for?)
- retrospective reactions from grant winners (How has the grant award influenced the recipient's professional life and affected classroom instruction?)

It is also beneficial to collect related materials, including announcements of the grants/scholarships, application forms, and lists of recipients. The Grant Scholarship Form in Appendix A was used by the UMC Documentation Project to record information about grant awards.

Who Will Document?

Deciding who will take the responsibility for documentation will depend on many factors. Some collaboratives may identify one person to handle all documentation, while others might choose to appoint someone to coordinate the effort and select a limited number of people to collect the information. Another option is to establish a documentation subcommittee of the governing board or teachers' council. In this case, however, a chair should be designated, so that the ultimate responsibility for documentation lies with one person. The eleven original UMC projects might also consider retaining the on-site observer from the UMC Documentation Project to continue the routine that has already been established.

While a documenter may volunteer his or her time, it is strongly recommended that either a formal contract or a job description outlining the responsibilities of the position be drawn up and that a provision for compensating the documenter be incorporated into the collaborative's Documentation Plan. Regardless of whether the compensation is a salary, a stipend, continuing education credits, or another form of payment, it serves to recognize the documenter's time and commitment to the responsibility for documentation.

In choosing documentation personnel, it is important not to spread the documentation responsibilities among too many people. Effective documentation will require training in the procedures that are established. Documenters will become more proficient as they gain experience. As they attend a wide variety of collaborative activities, they will develop a broader and more complete perspective of the collaborative. This will aid them in becoming better documenters.

If several people are to share the responsibilities for documentation, it will be most efficient if each person "specializes" or focuses his or her attention on a specific area of documentation. That is, one person can be assigned to document Context; another, Project Management; and a third, Collaborative Activities. Some collaboratives may consider assigning two or three documenters to cover project activities, especially if there are a number of activities geared to specific grade-level audiences. In this situation, a collaborative may consider assigning one person to report on activities for elementary teachers, another for activities oriented to middle school teachers, and a third to report on activities for high school teachers. However, it will be necessary to coordinate documenter assignments carefully to ensure that all activities are covered, since not all events will have a specific grade level focus.

While the assignment of documenters to specific areas helps to define each documenter's responsibilities and avoid duplication of effort, it does have drawbacks. By focusing data gathering on one specific area (Context, Project Management, or Collaborative Activities), each documenter develops a somewhat limited view of the total collaborative. Since an important part of the documentation process is to reflect on everything that has happened during the year and to try to put these events into perspective, it is important that the documenters meet periodically to share their perceptions with one another and that all documenters become involved in either writing or reviewing the annual report.

The person(s) selected to do the documentation could be teachers, retired teachers, collaborative staff, board members, or people outside the collaborative, such as graduate students from a local university. An advantage in using people from within the collaborative is that they already will have established a level of rapport with the teachers. Furthermore, if the documenters are either former or current mathematics teachers, they will be more likely to identify important issues in their conversations with teachers.

It is important that the documenters are available to attend programs and events that the collaborative sponsors or promotes. It also is advantageous for a documenter to be at all meetings of governing bodies and collaborative committees in order to keep abreast of collaborative activities and developments in collaborative management. Gathering information first-hand allows for the most accurate and complete documentation, since documenters need to gather data informally through conversation, as well as from written materials. However, it may not be possible for a documenter to attend every event. If a documenter can not be at an activity, he or she should be responsible for arranging for someone else to be at the event to collect information.

In addition to availability, other criteria for selecting documentation personnel should include being responsible and well organized; having the initiative to actively seek information; possessing good written and oral communication skills; and feeling comfortable and confident interviewing teachers, administrators, and representatives of business and higher education, as well as attending board and committee meetings. Whoever is selected should be made aware that the person who served as the UMC Documentation Project on-site observer can be a valuable resource.

Responsibility for documentation should not be assigned to the collaborative coordinator. Documentation is a time-consuming task that requires concentrated, systematic attention. The administration of a collaborative is a full responsibility in and of itself. Furthermore, collaborative coordinators play a key role in their projects and tend to have a high level of personal commitment to the collaborative. In addition, concern for a coordinator's personal feelings may inhibit a collaborative participant in giving a totally honest assessment of a situation. A documenter, therefore, needs to be perceived as having a relationship to the project that is qualitatively different from that of the coordinator. Looking to others to assume the responsibility for documentation provides an opportunity to involve a greater number of people in the collaborative. Recruiting teachers, other collaborative staff, board members, or reaching outside the collaborative to graduate students from a nearby university can bring a variety of perspectives to the documentation effort that enriches the process.

It is beneficial to provide all collaborative participants with an overview of the project's documentation efforts, including a brief introduction to the local documenter and his or her role and function. Providing such an introduction makes it easier for the documenter(s) to approach collaborative participants for personal interviews; it also makes collaborative members more comfortable in responding to questions, since they are aware of the documenter's responsibilities as data gatherer and reporter rather than as interpreter. One collaborative successfully accomplished this by including an article about the documenter and her responsibilities in the collaborative newsletter.

Formalizing the Data

As data are collected for the sections on Context, Project Management, and Collaborative Activities, the documenter(s) should prepare narrative descriptions that incorporate the relevant information. These reports provide an ongoing record of the development of the collaborative. They also can serve as a valuable management tool, providing the collaborative's governing bodies with information on which to base decisions. In addition, an ongoing system of formal reporting ensures that at the end of the year the project is not left with a mass of unprocessed data. Information that is organized and consolidated on a periodic basis will be easier to access and utilize.

A great deal of flexibility is possible in establishing the system by which the documenter(s) formalize the information collected. A major consideration must be whether the documentation effort is to be carried out by a single person or by a subcommittee responsible to a "documentation coordinator." The documentation process can function smoothly in either situation, as long as there is good communication within the collaborative.

As discussed earlier, basic documentation information encompasses three main areas: A. Context, B. Project Management, and C. Collaborative Activities. Data collection in each of these areas should be ongoing and concurrent.

A. Context

Information regarding context should be collected on a continuous basis. It is important, however, that at the end of a specified time period, such as at the end of each month, the documenter summarize the information, thereby providing an up-to-date record of events in the economic, social, political, and professional environments that impact on the collaborative's development. Throughout the month, when anything occurs that may affect the collaborative, the documenter should make notes and maintain a file of relevant articles or news items. At the end of the month, the documenter should review the materials and write a narrative documenting each event. It is helpful, in tracking the information, to give each narrative that describes an incident or event a descriptive title ("Reorganization of District Curriculum Office," "Teacher Contract Under Negotiation," "Project 2061"). This serves a dual purpose: first, the heading acts as an advanced organizer for the material; and, second, it aides in retrieving information related to a specific topic.

A documenter may write the narrative description at the time of the event. However, waiting until the end of the month provides the opportunity to put the event within the total context of what has been occurring. Sometimes incidents or events that are anticipated may not occur, or may not have the significance that was originally expected. Furthermore, writing about each event as it takes place may prove to be too time consuming, and, in the long run, the documenter might find it more efficient to write the context narrative on a monthly basis.

The documenter should acknowledge all sources used in preparing the write-up and attach any relevant articles or other background information to the report. Each month's compilation of narratives should be dated and the name of the documenter indicated. The report, along with accompanying materials, should then be filed in a folder that is dated by the month (and year) of the narrative report.

In subsequent months, the documenter may create a totally new set of narratives, or, if some of the topics or issues are the same as for a previous month, the documenter may supplement a previous report by adding an update. For example, if additional information appeared regarding a reorganization of the district curriculum office that took place the previous month, the documenter might simply update the previously written description instead of writing a completely new narrative. If this approach is taken, it is recommended that the documenter date each supplementary narrative or account. While this process is most efficient when a documenter prepares his or her narratives using a computer with word-processing software, the procedure can be accomplished without a computer. Keeping the context narrative current makes it easier to synthesize all of the context information at the end of the year. Whether independent monthly narratives are prepared for each month or narrative descriptions are continued from month to month, it is essential that original sources of information be clipped to the narrative report.

B. Project Management

As with the data for Context, information regarding Project Management should be collected continuously and then summarized periodically--e.g., on a monthly basis. At the end of each month, the documenter should develop a comprehensive list or index of the important actions or accomplishments related to the collaborative's development or management ("New Coordinator Hired," "Corporation Awards Funds to Collaborative," "Outreach Action Grant Proposal Submitted"). The index should also include the dates of important meetings that occurred during the time period. In addition to creating an index, the documenter should write a narrative to describe each specific action or development. A separate narrative should also be prepared for each key collaborative committee meeting that was held during the month. It is suggested, however, that the documenter write the meeting report as soon after the meeting as possible. The report should summarize the documenter's perceptions of the meeting and, when appropriate, include reactions from a sample of participants. This narrative should be attached to the agenda for the meeting along with any materials that were distributed. When the minutes of the meeting are printed, the documenter should add a copy to the report. If no minutes were taken at the meeting, the narrative should include a list of those who attended, issues discussed, actions taken, and any other significant information. It is important that the name of the documenter as well as the date the report was written be included on each narrative.

The narratives for events that affected the development or management of the project can be organized by month, with a separate folder designated to hold the narratives for each month. The folder from each month should contain an index of all of the actions or accomplishments related to the development or management of the collaborative, as well as the narrative that describes each of these events. In addition, a separate folder can be created for each key collaborative governing body or committee (Governing Board, Teacher Advisory Council, Program Committee). The folder would contain all of the narratives that describe the meetings of that committee as well as pertinent materials, such as minutes of meetings and handouts.

C. Collaborative Activities

As in the case of the Project Management narratives, a documenter should write the narrative that describes a specific collaborative activity as soon as possible after the activity. The narrative report should identify the event, its date and location, the role of the collaborative, the names of organizations that sponsored the activity if the collaborative did not, the purpose of the event, a description of the program, a breakdown by category of the people who attended the event and how they were selected, whether teachers received compensation, and participants' comments about the activity. In addition, it is beneficial for the documenter to include his or her personal reactions to the event. As with the other narratives, the documenter should sign and date the report. For some activities, the documenter will conduct a follow-up interview several months later to determine whether the activity had a direct impact on teachers' classroom practices. The documenter will need to expand the narrative by describing what, if any, impact the activity has had. Whenever a narrative is updated, the documenter should note the date on which the new information was added.

Each activity narrative can be filed in a separate folder. All related pieces of information, such as invitations, evaluation forms, handouts that were distributed at the event, newsletter articles, and the activity report form on which the information was originally recorded, should be filed in the folder along with the narrative.

Narrative reports should also be written about grant activity--awards or scholarships--whether the collaborative administered them directly or assisted teachers with the application process. Information in the report would include the name or type of grant/scholarship, the purpose of the grant, the total amount available, the range of individual awards and the source of funding, requirements for eligibility, application information, information on the way in which the collaborative publicized the availability of the grants/scholarships, information about the selection process, the collaborative's role in offering teachers assistance in applying, the number of teachers who applied, the number who received grants/scholarships and what they were used for, and comments from recipients. Relevant materials, such as grant announcements, application forms, and the list of recipients, should be clipped to the narrative report. As with the other activity narratives, the documenter may need to expand the report at a later date, adding a paragraph to indicate the impact of the grant award or scholarship.

In addition to preparing a narrative description for each activity and grant award, it is helpful for the documenter to develop a chronological listing or master index of all the collaborative's activities and grants. This index serves several purposes. First, it provides a quick overview of collaborative events, as well as a system for organizing the information. For convenience in accessing information, each activity in the index can be assigned a unique identification number that will appear on the narrative description of the activity, as well as on the label for the folder that contains the information for that activity. Second, the index provides a checklist to remind the documenter to obtain feedback on an activity after several weeks or months to determine whether it had an impact on classroom instruction. The master index, which will continue through the entire year, should be updated when each narrative is written.

Organizing the Information Collected

Successful documentation requires a well-organized system for storing and accessing the information collected. A filing system needs to be developed that ensures that the information is easily accessible. There are, clearly, many different ways that the data can be organized and filed. The system will vary according to the goals, areas of documentation, personnel, and procedures for formalizing data collection that are set forth in the collaborative's Documentation Plan.

The location of a project's documentation files may depend on whether one person is hired as the project's documenter, or whether the responsibility is being shared among several individuals. If the responsibility is assigned to a single person, it is advisable for that person to maintain the documentation files in a place that is convenient for him or her. It is important, however, that the project coordinator (or other designated person) regularly contact the documenter to ensure that the documentation responsibilities are being met, that the information is readily accessible, and that the documentation files are being kept current.

If documentation is the responsibility of several persons, it is probably better to maintain the files in a location that is central to the collaborative. Depending upon the collaborative's staffing, it may be most efficient for the collaborative secretary or administrative assistant to maintain the files in the collaborative office. The documenter(s) would then submit reports to the secretary to be filed, keeping a copy of the narrative for later reference. In this case, it will be necessary to determine how often the documenter(s) should submit information. It has been recommended that the narratives for context information be prepared at monthly intervals, whereas the narrative to document a specific activity be written as soon as the activity has taken place and all follow-up information has been gathered. It is important to specify deadlines for submission, whether it is a set date each month when information is due, or within a certain time frame following an activity. Whoever coordinates the documentation effort needs to verify that information is being submitted in a timely manner.

A filing system for reports submitted by the documenter(s) can be organized into three separate sections: one for Context, one for Project Management, and a third for Collaborative Activities. If a collaborative's Documentation Plan has identified other areas to be documented, additional sections should be designated for storing this information as well.

The first section of the file could hold Context information. A separate "monthly" folder can be created for the written narratives and accompanying materials that the documenter submits each month. If the documenter was directed to implement the "update" approach (i.e., incorporating, when appropriate, information about a topic from a previously written narrative rather than preparing a totally new narrative on the same topic), in any given month the documenter might be filing both updated narratives as well as narratives introducing new areas of contextual information. Under this system, it would be worthwhile to create a separate file folder for each updated topic. The remaining narratives submitted that month could then be filed in a single folder labeled by month and year.

A second section of the file could hold information related to Project Management. This section should contain a folder for each month, filed in chronological order. The materials in each month's folder would contain the list or index of the dates of collaborative meetings and of actions and accomplishments that impacted on the development of the collaborative during that month, as well as the documenter's narratives describing these actions and accomplishments. As suggested earlier, a separate file folder can be created for each collaborative committee that meets regularly (Governing Board, Steering Committee, Program Committee). The folder for a specific committee would contain the documenter's narrative reports for all of the meetings of that committee over the period of a year, as well as copies of minutes, attendance lists, and other relevant information. It is useful to create a new folder for each committee each year so that the materials remain readily accessible. Separate folders could also be created to hold significant documents related to the development of the collaborative, such as a project proposal or by-laws.

The third section of the file would hold information related to Collaborative Activities. Each individual activity (Calculator Workshop, Dinner Meeting) can be given its own folder with an identifying label. The documenter's narrative report as well as all other information pertaining to the activity would be filed in the folder (i.e., the announcement, documentation report form, materials distributed, and any flyers or newsletter articles related to it). The first folder in the Activity section of the file should contain the master index of the project's activities and grants, which the documenter adds to each month. To facilitate information retrieval, each activity on the index could be assigned a unique identification number. The number, along with the date and name of the activity, should be on the file folder label and on the narrative report submitted by the documenter. The folders for each activity could be filed chronologically or numerically behind the folder that contains the master index of activities.

The system for organizing and storing the data collected for documentation can be as simple or as sophisticated as time and resources permit. Computer use can certainly enhance a documentation effort. Both computer word processing software to create the narrative descriptions and a data base program to organize and access the information offer great advantages. Word processing programs enable a documenter to easily update a narrative to incorporate new information and to maintain updated indexes of project events and activities. A computerized data base program provides an efficient way to organize, process, and easily access the information that has been collected.

While it is essential to maintain a filing cabinet to hold the narrative reports and the accompanying materials submitted by the documenter, having the information keyed into a data base program provides the collaborative with a way to quickly retrieve the information as needed. In using a data base, the information entered can be sorted and retrieved on the basis of a variety of categories created to reflect the collaborative's needs for information. For example, categories (fields) for entering activities might include: date of occurrence; activity type (workshop, conference, governing board, meeting); participants (by grade level, gender, ethnic background); speakers; and sponsors of the event (the collaborative, school district, professional organization, higher education, business). When evaluating past activities or planning future events, reports can then be quickly and easily pulled according to specified criteria, such as within a designated time frame (all activities conducted during the fall semester of 1990), by target population (all activities attended by middle school teachers), or by type (all the workshops or all the meetings of the governing board). This information, as well as a variety of other reports, can then be used to make informed decisions about the collaborative.

The specific data base program that is used to manage the information, as well as the types of information that is entered into the data base, will depend on the collaborative's Documentation Plan as well as on the availability of computer resources and personnel. While not a prerequisite for a successful documentation program, the use of computers to facilitate the documentation effort is certainly worth exploring.

Creating An Annual Report

An annual report provides a complete picture of the collaborative's activities and development over the year. The report may include a description of the social, economic, political, and professional environments in which the collaborative is operating; developments that have occurred in the collaborative's governing structure; project activities; and the level of teacher participation in collaborative activities; as well as any other features that the collaborative views as significant. In addition to being a historical record, the report should include the rationale for the events scheduled. The collaborative's Annual Report provides a means by which a project can trace its progress, review its activities, and plan for the future. The actual process of creating an annual report requires the writer(s) to review the entire year from a variety of perspectives, thereby gaining an opportunity for greater understanding of the evolution of the collaborative. A key part of the Annual Report, therefore, is a section that reflects on what has occurred during the year and tries to analyze and give meaning to these events and developments. The focus of the observations and reflections will vary, depending on the emphases of the project; however, the four areas addressed in the Observations section of the Annual Report to the Ford Foundation prepared by the UMC Documentation Project were Project Management, Collaboration, Professionalism, and Mathematics Focus.

In writing the Observations section of the report, all available information should be reviewed before an effort is made to give this information meaning. As part of this process, it is important to be as sensitive to what was not reported, what teachers did not say, or what did not happen, as it is to be aware of what did happen. It is only natural that much of the information collected through the documentation process will be written in a way that presents the collaborative in a completely positive light. It is important, however, that interpretations presented in the Annual Report are unbiased and yet are written diplomatically and with sensitivity to the audience that is to read the report.

Information that is missing from reports can be indicative of a struggle that the collaborative is going through or a void that it is experiencing. For example, a documenter may report that teachers who attend collaborative events or participate in governing committees greatly appreciated the opportunity to learn more about mathematics or to network. No mention, however, may be made of reactions by representatives from business, industry, and higher education. As a result, it might appear that the collaborative is positively influencing teachers but has not yet developed a strategy to involve the business and university communities. Since this is only one possible conclusion, the missing (or omitted) information must be verified with a documenter and/or a member of the collaborative administration before the conclusion is reported.

Comments by teachers can be an important source of information when trying to evaluate activities in light of the collaborative's goals. For example, teachers who are interviewed several weeks after a collaborative activity to determine whether the activity has affected their classroom teaching may praise the workshop, but not mention any impact that the program had on their teaching of mathematics. It may be concluded that these teachers are pleased to have been given the attention as well as the opportunity to attend professional activities, but that they did not incorporate the information from the workshop into their classroom teaching of mathematics. Consider the following exchange:

Interviewer: "What did you gain from attending the workshop?"
Teacher: "Oh, it was great! The best workshop I have attended.
I received many good ideas."
Interviewer: "How has it changed what you do in the classroom?"
Teacher: "Oh, I have not been able to use any of the ideas because
I do not have the materials, and besides our curriculum is
already specified."

In describing activities of the past year, one might conclude that the activities were successful because the teachers reported that they enjoyed them and got some good ideas from them. However, if a collaborative goal was to effect a change in classroom instruction, the activities may not be the complete success that they initially appeared to be. In the workshop example above, no changes occurred in classroom instruction. The teacher quoted encountered ideas that she liked, but other factors did not permit her to modify the curriculum and incorporate these ideas into her classroom practices. Consequently, collaborative leadership needs to reflect on how to address these other factors so that project goals can be accomplished.

In planning the Annual Report, it will be necessary to design a format that best meets the needs of the people who will be using the information. In structuring the format of the report, it may be helpful to refer to the collection of summary reports that have been prepared by the UMC Documentation Project (Romberg & Pitman, 1985; Romberg, Webb, Pitman, & Pittelman, 1987; Webb, Pittelman, Romberg, Pitman, & Williams, 1988; Webb, Pittelman, Romberg, Pitman, Fadell, & Middleton, 1989; Webb, Pittelman, Romberg, Pitman, Middleton, Fadell, & Sapienza, 1990; Webb, Pittelman, Sapienza, Romberg, Pitman, & Middleton, 1991).

As part of the procedure in preparing the Annual Report, one person may be designated to review the information and write a first draft. The person who writes the draft need not be the documenter. Another alternative would be to form a documentation committee to undertake this assignment. In either case, it is suggested that a draft of the report be reviewed by the collaborative coordinator and/or director to check its accuracy, as well as by other key collaborative members, including the documenters who gathered the information. It is possible that the documenter, or the person(s) who drafted the Annual Report, may not have correctly perceived a situation or may have misinterpreted certain aspects of it. By verifying the information with the collaborative's decisionmakers, it is more likely that a complete picture will be gained. Validation also serves the purpose of requiring people to reflect on what has occurred. Reflection can frequently result in beneficial insights regarding the collaborative's future course.

An accurate and complete Annual Report can be a valuable communication tool. It not only serves to keep those within the collaborative informed of the wide variety of collaborative activities, the governance of the collaborative, and important decisions that are being made, but it is also useful when there is a change in collaborative staff. It serves to orient new people to past goals and activities and helps them to understand the developmental process the collaborative has gone through. The Annual Report is also a powerful networking tool. It can be exchanged with other collaboratives, as well as used to publicize the collaborative to the general public. Furthermore, a well-planned and well-written Annual Report can be instrumental in attracting new funding sources.

Evaluating the Documentation Plan

The Documentation Plan will need to be evaluated periodically to determine whether or not the collaborative is collecting all relevant and necessary information. Often the actual process of synthesizing the information for the Annual Report is a good test of whether the correct data has been collected over the year, thereby revealing the strengths and weaknesses of the Documentation Plan. Developing an outline for the Annual Report early in the year will enhance the possibility of creating a complete record. It is important also to monitor the collaborative's documentation needs over the course of the year to see whether these have changed. If they have, the documentation efforts will need to be adjusted to fit the revised needs.

IV. AN OVERVIEW OF THE UMC DOCUMENTATION PROJECT

The Urban Mathematics Collaborative Documentation Project at the Wisconsin Center for Education Research at the University of Wisconsin-Madison was established by the Ford Foundation in 1984, concurrent with the establishment of the initial five collaboratives. The UMC Documentation Project, under the direction of Professor Thomas Romberg, was charged with recording the progress of each collaborative as it defined, refined, and redefined its focal concerns. The efforts of the eleven collaboratives, as well as those of the Ford Foundation, merit study based on conscientious documentation for three reasons:

> (1) Each of the collaboratives, as well as the Ford Foundation, needed to be kept informed about the development of the individual projects. Ongoing collaborative strategies and activities, and the effects of these on the professional lives of teachers and other project participants, needed to be documented in order to be shared.
>
> (2) It is important for each collaborative, the Ford Foundation, and the educational policymaking community to understand the characteristics and relationships inherent in individual collaborative projects. Because change occurs over time, all of the activities that are carried out, the actual changes in behavior, the anticipated outcomes, the unanticipated outcomes, and the impediments encountered must be documented so that they can be clearly identified and studied.
>
> (3) Although it was expected that each collaborative site would be different, it was believed that it would be possible to identify project activities, problems, and strategies that could be generalized across the collaboratives and applied to different settings. These generalizations have proven to be especially important now that other sites are establishing mathematics collaboratives. Furthermore, by encouraging mathematics teachers to act as self-directed professionals, the collaboratives are generating strategies that can be used with teachers of all subjects.

In addition to collecting and synthesizing information for each collaborative, the Documentation Project provided each of the collaboratives with a broader view of its place in the overall UMC project. Over a five-year period, the UMC Documentation Project served as a source of information about how other sites were dealing with similar issues and provided advice on problems common to all sites. The staff of the Documentation Project also provided professional expertise on issues in mathematics education when such input was requested.

Methods of Data Collection

To perform a comprehensive job of documentation for the UMC project, Documentation Project staff had to address the task from several different perspectives. First, it was necessary to establish a mechanism to provide continuous data collection for each collaborative. We needed an ongoing description of what was happening within the project--of the activities that were taking place as well as changes that were occurring. We knew that we also had to have ongoing information about the social, economic, and political, and professional context in which the collaborative was operating, since we recognized the effect that could have on the collaborative itself. Second, we needed to develop instruments and procedures to probe specific issues or topics with collaborative members. These topics were either identified at the local collaborative level or selected as key issues for study throughout the UMC project. We believed that a specialist coming in from the outside would be able to see things from a different perspective and, by judicious probing, reveal new insights on a particular issue. A third level at which data collection was required was at gatherings of groups of people where the collaborative was represented and where interactions took place that subsequently affected the project. These types of gatherings occurred both at the local level (meetings of the collaborative governing bodies, or meetings of the heads of key agencies within a city or district) as well as at the national level (UMC meetings for members of all collaborative projects, or gatherings at national conferences). Finally, we needed to find a means through which we could share the information we had collected and the insights we had gained.

Consequently, we created a variety of procedures for data collection. To gather ongoing information about the collaboratives, a documenter, or on-site observer, was hired for each collaborative. The on-site observer submitted written reports monthly, summarizing what had occurred. We also regularly monitored the information that was sent over the electronic network that the UMC Technical Assistance Project sponsored. To investigate specific issues at a deeper level, we administered four written surveys to a subset of teachers. These surveys provided quantitative data and not only gave us information about the teachers within a site, but enabled us to compare and contrast data from the eleven collaboratives. In addition to the written surveys, we directed the on-site observers to conduct interviews that probed specific topics. Members of the Documentation Project made on-site visits to explore some of these issues in personal interviews with teachers as well as with other collaborative members. These on-site visits also provided us with an opportunity to validate information that had been received from other sources, to resolve questions that may have arisen from the data, and to enable someone who was not directly associated with the collaborative site to gather data. It was our intent that the members of the Documentation Project who made the visits were perceived as persons who might offer a different perspective on issues of collaboration and to whom collaborative members might freely express their thoughts. In-depth case studies also were conducted involving one or two teachers at each collaborative site. These case studies were conducted by on-site ethnographers under the supervision of staff of the UMC Documentation Project.

To share our information and insights, each year the Documentation Project prepared the Annual Report to the Ford Foundation. In the report, we not only reflected on the UMC project as a whole, but a considerable portion of the report was dedicated to an in-depth account of each of the eleven collaboratives.

An overview of the procedures that we developed specifically for data collection is presented in this section along with explanations that we feel might be helpful to a collaborative in its own data collection efforts. Examples of the data collection instruments used are provided in the Appendixes. This information is not intended to encourage a collaborative to duplicate our approach, but rather, is an effort to share the tools and procedures that we found useful in documentation. Materials in the Appendixes are presented solely as examples; each collaborative is urged to develop instruments to reflect the goals set forth in its Documentation Plan.

It must be noted that the UMC Documentation Project was charged with documenting the development not only of the eleven individual collaboratives but of the UMC Network as well. As part of this effort, we created a formal data collection system that focused on specific issues, such as teachers' conceptions of mathematics and teachers' views of teaching as a profession. While we have included copies of these instruments in the Appendixes, data collection of this type may well be beyond the scope of most individual collaborative projects in terms of financial and personnel resources. The UMC Documentation Project not only had the advantage of hiring an on-site observer for each collaborative, but staff members of the Documentation Project at the University of Wisconsin could bring an outside perspective to the sites that they visited. And finally, we had a team of data analysts who had responsibility for organizing, analyzing, and synthesizing the data we received.

The UMC Documentation Project developed seven main procedures for data collection: monthly reports submitted by the part-time on-site observer for each collaborative; communications sent over the electronic network operated by the UMC Technical Assistance Project at the Education Development Center (EDC); large-scale surveys administered to teachers at each collaborative site, supplemented by teacher interviews conducted by the on-site observers; demographic surveys to participating school districts; site-visits conducted by UMC Documentation Project staff; in-depth case studies involving a limited number of collaborative teachers at each site; and information collected at special UMC functions.

Monthly Reports from the On-Site Observers

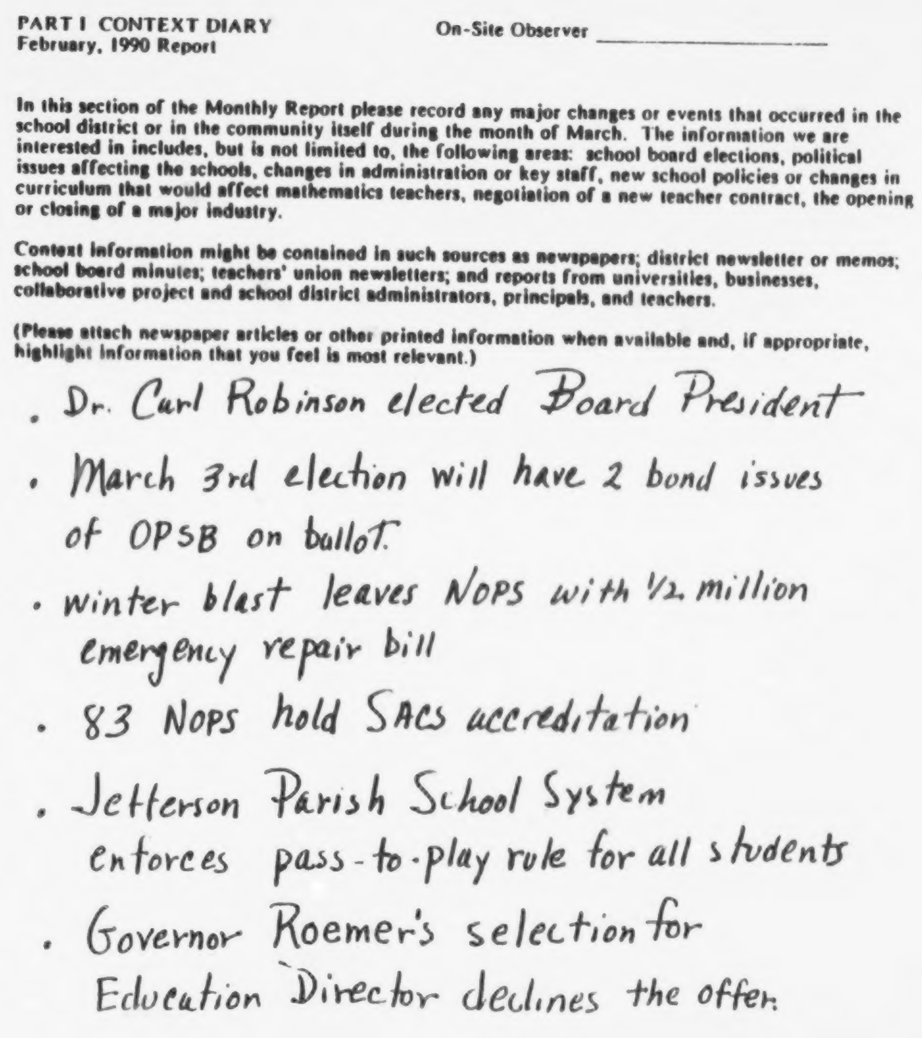
The UMC Documentation Project hired an on-site observer at each collaborative site. The on-site observers received a 14 percent appointment from the University of Wisconsin-Madison for 12 months a year, which averaged approximately 5 1/2 hours per week. At most of the sites, the on-site observer was a collaborative teacher, although retired teachers, a school district staff person, and an interested community member also served as on-site observers. We felt that it was very important to have a documenter in each collaborative--someone who could be in the community while the collaborative was developing and could have "feelers" out continually.

To ensure that the collection of information was an ongoing process, each month the on-site observer submitted a written report to the UMC Documentation Project. The Monthly Report Form was comprised of five basic sections: A. Context Diary, B. Additional Comments, C. Project Diary, D. Diary of Professional Relations, and E. Impact of the Collaborative. The Monthly Report Form was reviewed periodically with the on-site observers, and revised as deemed necessary and appropriate. A copy of the Monthly Report Form is presented as Appendix A.

A. Context Diary

On this page of the Monthly Report, the on-site observer reported important changes or events that occurred in the school district(s) or in the community. The observer would also include information on opportunities for professional development sponsored by other organizations that were available to mathematics teachers. The type of information reported in the Context Diary would include, but not be limited to, the following areas: school board elections; political issues affecting the schools; changes in administration or key staff; changes in school policy or curriculum that would affect mathematics teachers; adoption of a budget; negotiation of a new teacher contract; changes in state legislation affecting teacher certification, graduation requirements, mathematics curriculum, or the overall education of students; and the opening or closing of a major industry. Figures 1 and 2 are completed Context Diaries as submitted by two on-site observers. (One of the on-site observers entered the Monthly Report Form on his personal computer.)

Common sources of context information included newspapers; district newsletters or memos; school board minutes; newsletters from teachers' unions or from professional mathematics organizations; reports from universities, businesses, district and collaborative administrators, principals, and teachers; and announcements of mathematics-related activities. Copies of printed information were attached to the Context Report when appropriate.



PART I CONTEXT DIARY
February, 1990 Report

On-Site Observer ______________________

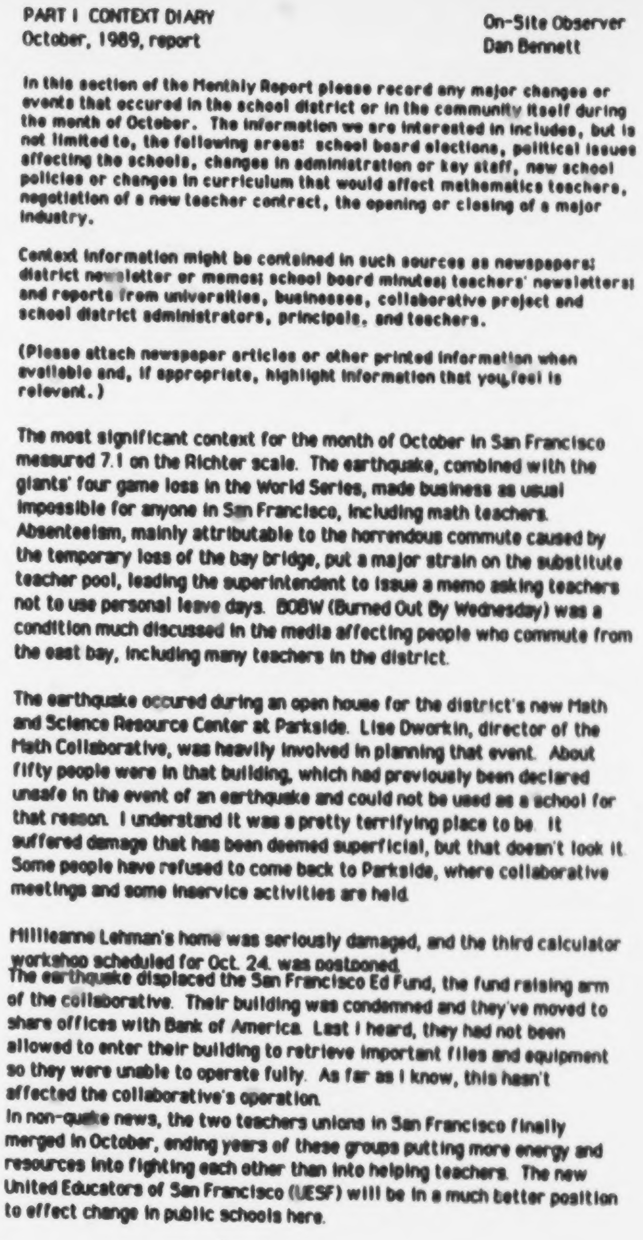
In this section of the Monthly Report please record any major changes or events that occurred in the school district or in the community itself during the month of March. The information we are interested in includes, but is not limited to, the following areas: school board elections, political issues affecting the schools, changes in administration or key staff, new school policies or changes in curriculum that would affect mathematics teachers, negotiation of a new teacher contract, the opening or closing of a major industry.

Context information might be contained in such sources as newspapers; district newsletter or memos; school board minutes; teachers' union newsletters; and reports from universities, businesses, collaborative project and school district administrators, principals, and teachers.

(Please attach newspaper articles or other printed information when available and, if appropriate, highlight information that you feel is most relevant.)

- Dr. Carl Robinson elected Board President
- March 3rd election will have 2 bond issues of OPSB on ballot.
- winter blast leaves NOPS with 1/2 million emergency repair bill
- 83 NOPS hold SACS accreditation
- Jefferson Parish School System enforces pass-to-play rule for all students
- Governor Roemer's selection for Education Director declines the offer.

Figure 1. Context Diary as completed by an on-site observer.



PART I CONTEXT DIARY
October, 1989, report

On-Site Observer
Dan Bennett

In this section of the Monthly Report please record any major changes or events that occured in the school district or in the community itself during the month of October. The information we are interested in includes, but is not limited to, the following areas: school board elections, political issues affecting the schools, changes in administration or key staff, new school policies or changes in curriculum that would affect mathematics teachers, negotiation of a new teacher contract, the opening or closing of a major industry.

Context information might be contained in such sources as newspapers: district newsletter or memos; school board minutes; teachers' newsletters; and reports from universities, businesses, collaborative project and school district administrators, principals, and teachers.

(Please attach newspaper articles or other printed information when available and, if appropriate, highlight information that you feel is relevent.)

The most significant context for the month of October in San Francisco measured 7.1 on the Richter scale. The earthquake, combined with the giants' four game loss in the World Series, made business as usual impossible for anyone in San Francisco, including math teachers. Absenteeism, mainly attributable to the horrendous commute caused by the temporary loss of the bay bridge, put a major strain on the substitute teacher pool, leading the superintendent to issue a memo asking teachers not to use personal leave days. BOBW (Burned Out By Wednesday) was a condition much discussed in the media affecting people who commute from the east bay, including many teachers in the district.

The earthquake occured during an open house for the district's new Math and Science Resource Center at Parkside. Lise Dworkin, director of the Math Collaborative, was heavily involved in planning that event. About fifty people were in that building, which had previously been declared unsafe in the event of an earthquake and could not be used as a school for that reason. I understand it was a pretty terrifying place to be. It suffered damage that has been deemed superficial, but that doesn't look it. Some people have refused to come back to Parkside, where collaborative meetings and some inservice activities are held.

Millieanne Lehman's home was seriously damaged, and the third calculator workshop scheduled for Oct. 24. was postponed.
The earthquake displaced the San Francisco Ed Fund, the fund raising arm of the collaborative. Their building was condemned and they've moved to share offices with Bank of America. Last I heard, they had not been allowed to enter their building to retrieve important files and equipment so they were unable to operate fully. As far as I know, this hasn't affected the collaborative's operation.
In non-quake news, the two teachers unions in San Francisco finally merged in October, ending years of these groups putting more energy and resources into fighting each other than into helping teachers. The new United Educators of San Francisco (UESF) will be in a much better position to effect change in public schools here.

Figure 2. Context Diary as completed by an on-site observer.

B. Additional Comments

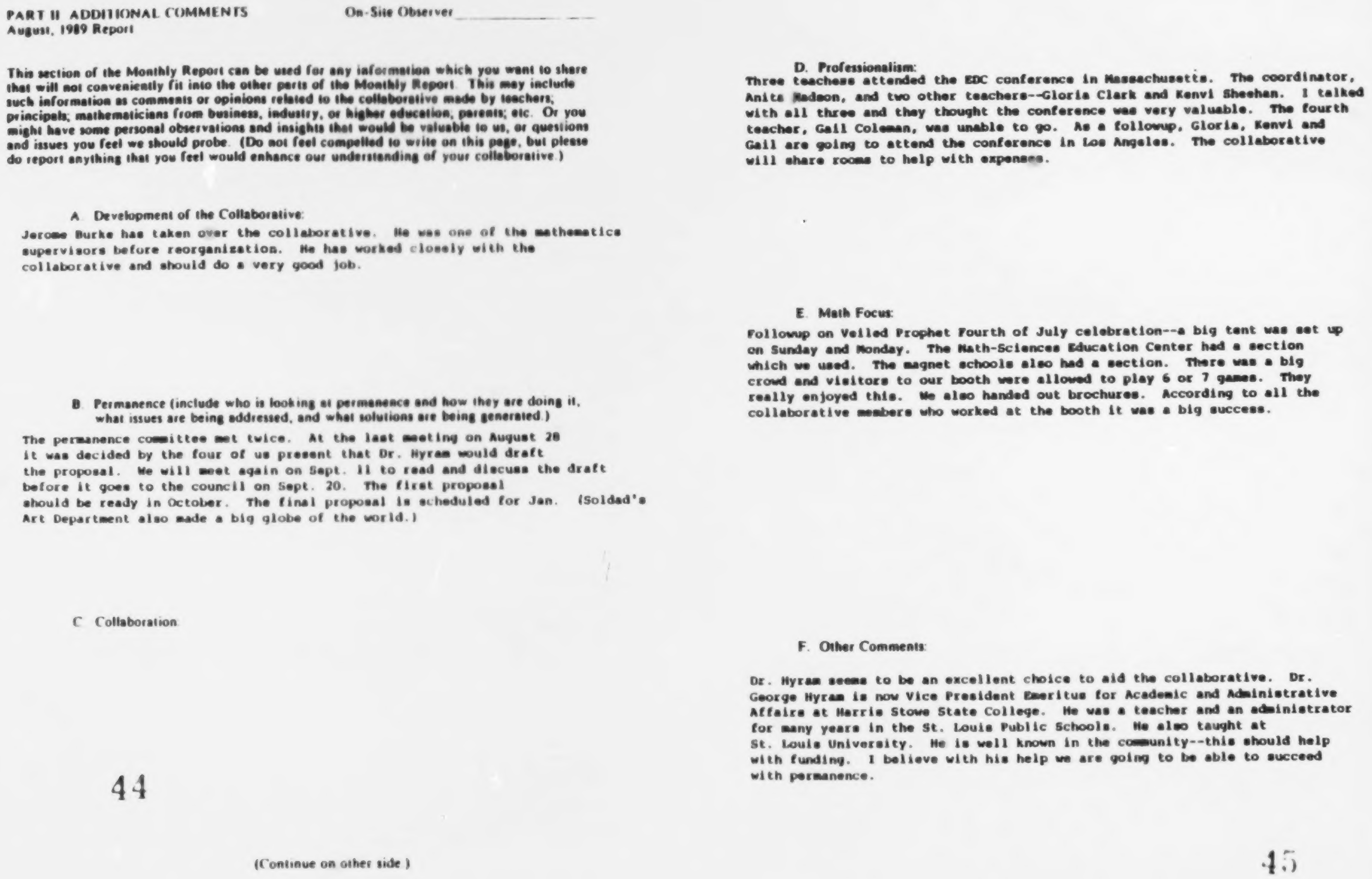
The second section of the Monthly Report provided the on-site observers an opportunity to share their own personal observations or insights about the collaborative, as well as comments or concerns obtained from others. The form was divided into six sections to assist the on-site observers in focusing their observations around five key issues that were of special interest to the UMC project: A. Development of the Collaborative, B. Permanence, C. Collaboration (among teachers and schools, as well as among members of the higher education and business communities), D. Professionalism, and E. Mathematics Focus of the collaborative. The sixth section on the form was for observations or comments that did not fall into one of the other five categories. Examples of the Additional Comments section, as completed by two on-site observers, are presented in Figures 3 and 4.

C. Project Diary

In the third section of the Monthly Report Form, the on-site observers reported information on activities and grant offerings in which the collaborative played a role. On the first page of the Project Diary, the on-site observer listed the names and dates of any activities that the collaborative had scheduled for the future. Two examples of the first page of the Project Diary, as completed by on-site observers, are presented in Figures 5 and 6.

Information about activities or events that had occurred within the month was reported on either the Activity/Conference Form or the Grant/Scholarship Form. Three copies of the Activity/Conference Form and one copy of the Grant/Scholarship Form were included in each Project Diary. The on-site observers were instructed to duplicate the forms if additional activities and grant offerings needed to be reported, although that rarely happened.

Activity/Conference Form. Information about each collaborative activity or conference that occurred during the month was reported on a separate Activity/Conference Form. On the first page of the form, the on-site observer recorded general information about the event, including the name of the activity or conference; the



PART II ADDITIONAL COMMENTS On-Site Observer ______________
August, 1989 Report

This section of the Monthly Report can be used for any information which you want to share that will not conveniently fit into the other parts of the Monthly Report. This may include such information as comments or opinions related to the collaborative made by teachers; principals; mathematicians from business, industry, or higher education; parents; etc. Or you might have some personal observations and insights that would be valuable to us, or questions and issues you feel we should probe. (Do not feel compelled to write on this page, but please do report anything that you feel would enhance our understanding of your collaborative.)

A. Development of the Collaborative:

Jerome Burke has taken over the collaborative. He was one of the mathematics supervisors before reorganization. He has worked closely with the collaborative and should do a very good job.

B. Permanence (include who is looking at permanence and how they are doing it, what issues are being addressed, and what solutions are being generated.)

The permanence committee met twice. At the last meeting on August 28 it was decided by the four of us present that Dr. Hyram would draft the proposal. We will meet again on Sept. 11 to read and discuss the draft before it goes to the council on Sept. 20. The first proposal should be ready in October. The final proposal is scheduled for Jan. (Soldad's Art Department also made a big globe of the world.)

C. Collaboration:

(Continue on other side.)

D. Professionalism:

Three teachers attended the EDC conference in Massachusetts. The coordinator, Anita Madson, and two other teachers--Gloria Clark and Kenvi Sheehan. I talked with all three and they thought the conference was very valuable. The fourth teacher, Gail Coleman, was unable to go. As a followup, Gloria, Kenvi and Gail are going to attend the conference in Los Angeles. The collaborative will share rooms to help with expenses.

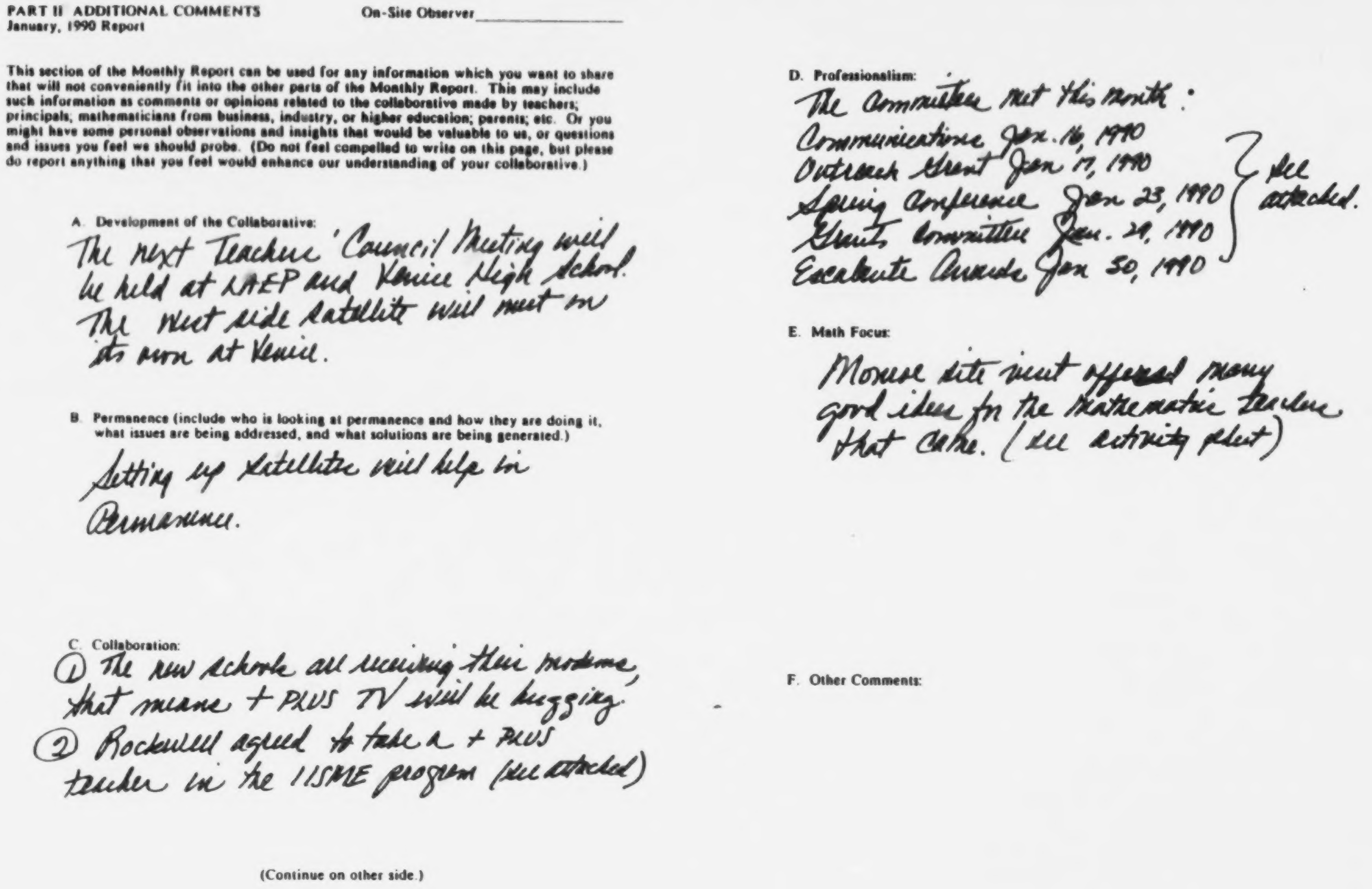
E. Math Focus:

Followup on Veiled Prophet Fourth of July celebration--a big tent was set up on Sunday and Monday. The Math-Sciences Education Center had a section which we used. The magnet schools also had a section. There was a big crowd and visitors to our booth were allowed to play 6 or 7 games. They really enjoyed this. We also handed out brochures. According to all the collaborative members who worked at the booth it was a big success.

F. Other Comments:

Dr. Hyram seems to be an excellent choice to aid the collaborative. Dr. George Hyram is now Vice President Emeritus for Academic and Administrative Affairs at Harris Stowe State College. He was a teacher and an administrator for many years in the St. Louis Public Schools. He also taught at St. Louis University. He is well known in the community--this should help with funding. I believe with his help we are going to be able to succeed with permanence.

Figure 3. Additional Comments Form as completed by an on-site observer.



PART II ADDITIONAL COMMENTS
January, 1990 Report

On-Site Observer ____________

This section of the Monthly Report can be used for any information which you want to share that will not conveniently fit into the other parts of the Monthly Report. This may include such information as comments or opinions related to the collaborative made by teachers; principals; mathematicians from business, industry, or higher education; parents; etc. Or you might have some personal observations and insights that would be valuable to us, or questions and issues you feel we should probe. (Do not feel compelled to write on this page, but please do report anything that you feel would enhance our understanding of your collaborative.)

A. Development of the Collaborative:

The next Teachers' Council Meeting will be held at LAEP and Venice High School. The West side satellite will meet on its own at Venice.

B. Permanence (include who is looking at permanence and how they are doing it, what issues are being addressed, and what solutions are being generated.)

Setting up satellites will help in Permanence.

C. Collaboration:

① The new schools all receiving their modems, that means + PLUS TV will be buzzing.
② Rockwell agreed to take a + PLUS teacher in the IISME program (see attached)

(Continue on other side.)

D. Professionalism:

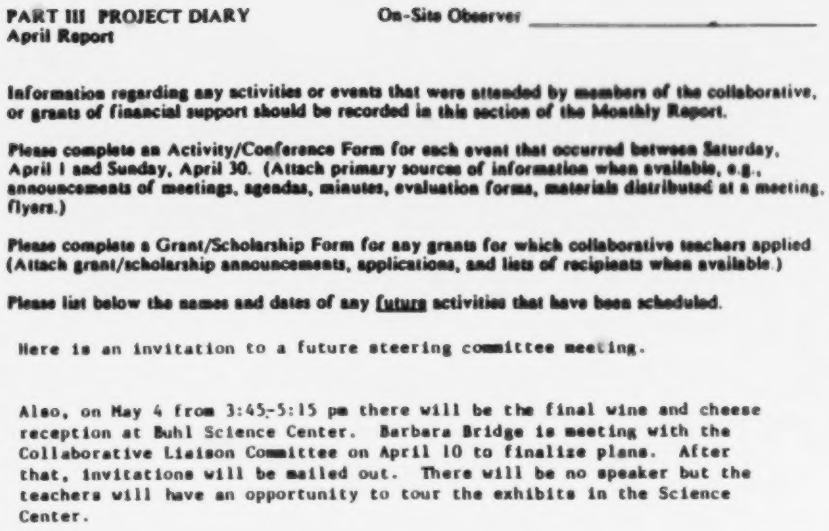
The committees met this month:
Communications Jan. 16, 1990
Outreach Grant Jan 17, 1990
Spring Conference Jan 23, 1990
Grants Committee Jan. 29, 1990
Escalante Awards Jan 30, 1990
} see attached.

E. Math Focus:

Monroe site visit offered many good ideas for the mathematics teachers that came. (see activity sheet)

F. Other Comments:

Figure 4. Additional Comments Form as completed by an on-site observer.



PART III PROJECT DIARY **On-Site Observer** ____________________
April Report

Information regarding any activities or events that were attended by members of the collaborative, or grants of financial support should be recorded in this section of the Monthly Report.

Please complete an Activity/Conference Form for each event that occurred between Saturday, April 1 and Sunday, April 30. (Attach primary sources of information when available, e.g., announcements of meetings, agendas, minutes, evaluation forms, materials distributed at a meeting, flyers.)

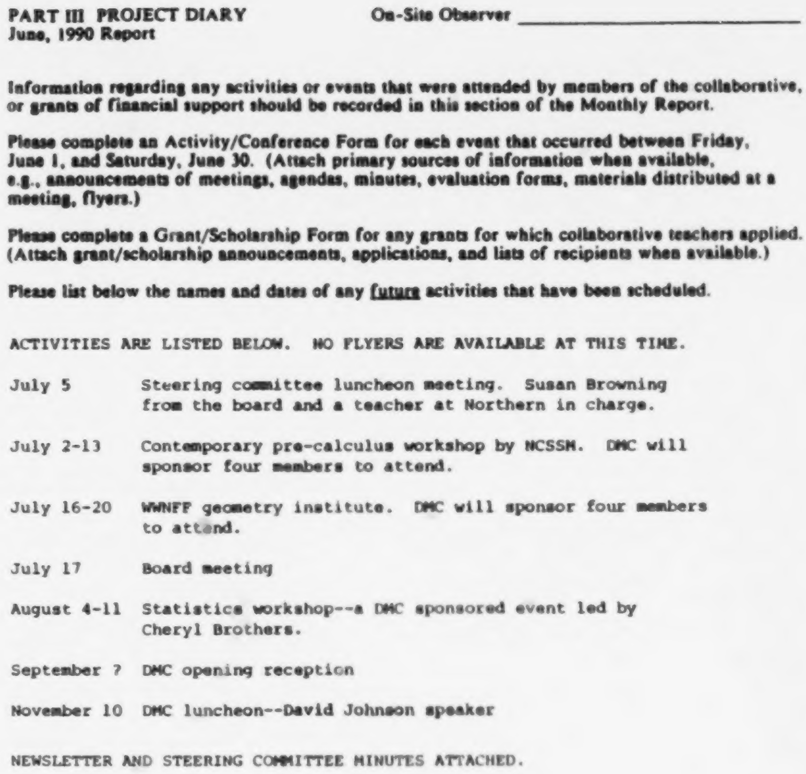
Please complete a Grant/Scholarship Form for any grants for which collaborative teachers applied (Attach grant/scholarship announcements, applications, and lists of recipients when available.)

Please list below the names and dates of any future activities that have been scheduled.

Here is an invitation to a future steering committee meeting.

Also, on May 4 from 3:45-5:15 pm there will be the final wine and cheese reception at Buhl Science Center. Barbara Bridge is meeting with the Collaborative Liaison Committee on April 10 to finalize plans. After that, invitations will be mailed out. There will be no speaker but the teachers will have an opportunity to tour the exhibits in the Science Center.

Figure 5. Project Diary as completed by an on-site observer.



PART III PROJECT DIARY **On-Site Observer** ____________________
June, 1990 Report

Information regarding any activities or events that were attended by members of the collaborative, or grants of financial support should be recorded in this section of the Monthly Report.

Please complete an Activity/Conference Form for each event that occurred between Friday, June 1, and Saturday, June 30. (Attach primary sources of information when available, e.g., announcements of meetings, agendas, minutes, evaluation forms, materials distributed at a meeting, flyers.)

Please complete a Grant/Scholarship Form for any grants for which collaborative teachers applied. (Attach grant/scholarship announcements, applications, and lists of recipients when available.)

Please list below the names and dates of any future activities that have been scheduled.

ACTIVITIES ARE LISTED BELOW. NO FLYERS ARE AVAILABLE AT THIS TIME.

July 5	Steering committee luncheon meeting. Susan Browning from the board and a teacher at Northern in charge.
July 2-13	Contemporary pre-calculus workshop by NCSSM. DMC will sponsor four members to attend.
July 16-20	WWNFF geometry institute. DMC will sponsor four members to attend.
July 17	Board meeting
August 4-11	Statistics workshop--a DMC sponsored event led by Cheryl Brothers.
September 7	DMC opening reception
November 10	DMC luncheon--David Johnson speaker

NEWSLETTER AND STEERING COMMITTEE MINUTES ATTACHED.

Figure 6. Project Diary as completed by an on-site observer.

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role of the collaborative (in planning or funding the event, funding participants to attend, and in publicizing, or co-sponsoring the event); the name of the organization that sponsored the event if the collaborative did not; a brief description of the event (including the name of the speaker or program and the date and time); the purpose of the event; and a breakdown by category of the people who attended the event and how they were selected. There was also a place to indicate whether teachers who attended received any compensation (financial, classroom materials, continuing education credit, or release time).

The second page of the Activity/Conference Form provided a place for the on-site observer to record firsthand comments from teachers about the activity. The on-site observers were asked to interview five teachers following an activity and to accurately record their comments. While suggested questions were included on the form, on-site observers were encouraged to adapt their queries to the specific activity or event. If, at the end of the activity, the collaborative had distributed evaluation forms that included a place for written comments, the on-site observer often submitted these forms in lieu of conducting the teacher interviews. (A sampling of evaluation forms that were collected by the UMC Documentation Project are presented in Appendix B. It is not recommended that these forms be used in place of teacher interviews, but they are included as an indication of the various foci that can be used to document or evaluate an activity.)

On the third page of the Activity/Conference Form, the on-site observer recorded reactions to the activity by attendees from the business and higher education communities. On-site observers were encouraged to obtain comments from three representatives of business or higher education. While it was often difficult for the on-site observer to do this, their comments added a different perspective to the reports of an event. At the end of the third page of the Activity/Conference Form, space is provided for the on-site observer to record his or her own impressions of the event as well as perceptions of the comments made by others. The reactions of the on-site observer were very helpful in providing a more complete picture of the activity from yet a different perspective.

In addition to completing the Activity/Conference Form, the on-site observers were asked to collect and attach other sources of information related to the activity, such as flyers, invitations, articles in the collaborative newsletter, copies of completed evaluation forms, and a set of any materials that were distributed at the activity. All of these supplementary materials help to provide a more thorough understanding of the event.

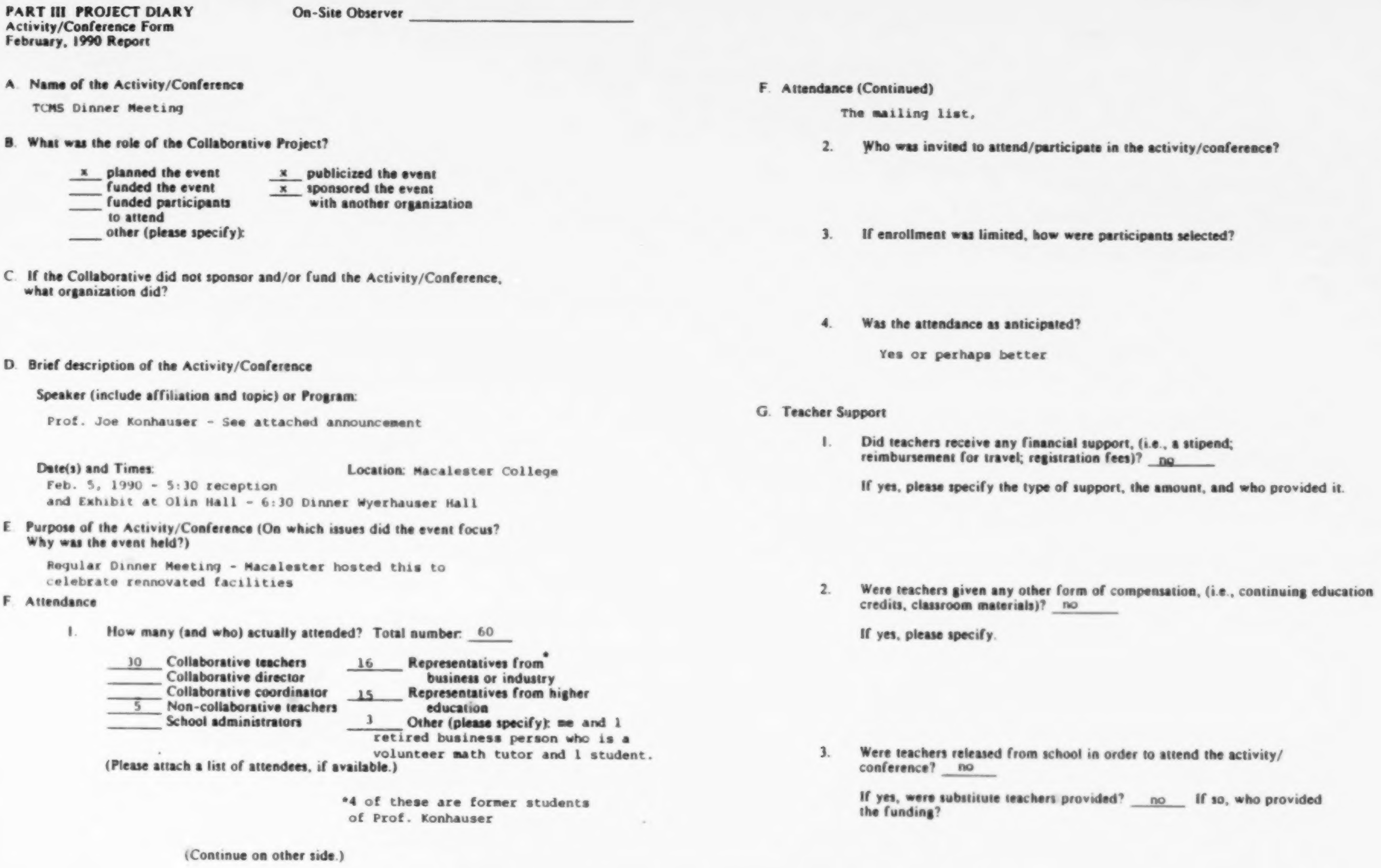
Examples of Activity/Conference Forms completed by the on-site observers from three collaboratives are presented in Figures 7, 8, and 9.

Grant/Scholarship Form. The on-site observer completed a Grant/Scholarship Form whenever the collaborative announced a grant program or played a role in assisting a collaborative teacher to apply for financial support from some other agency. On the form, on-site observers indicated the name or type of grant/scholarship; the purpose; the total amount available, the range of individual awards, and the source of funding; eligibility criteria; application information; information about the selection process; how the collaborative publicized the availability of the grants/scholarships; whether the collaborative offered teachers who applied assistance during the application process; how many teachers applied, how many received grants/scholarships, and what they were used for; and lastly, comments from recipients regarding the collaborative's role in the process. As with the Activity/Conference Form, the on-site observer was asked to attach relevant information, including announcements of the grants/scholarships, application forms, and lists of recipients. An example of a completed Grant/Scholarship Form is presented in Figure 10.

D. Diary of Professional Relationships

The Diary consisted of teacher interview questions designed to probe specific issues that had been identified as being important to the UMC effort, although not every Monthly Report contained this section. In most cases, the questions were created to supplement information collected through the large-scale written surveys. Each Diary contained an average of six questions. In general, the on-site observers were asked to interview five teachers. They used their own discretion in selecting teachers to interview, but were given guidelines for determining how the sample of teachers to be interviewed was to be distributed among the following: teachers who were frequent collaborative participants, occasional participants, nonparticipants, or a combination of the three groups.

A comprehensive list of the questions that comprised the Diary of Professional Relationships, organized by the issue addressed, is presented in Appendix C. An example of a Diary of Professional Relationships as it appeared in a Monthly Report can be found in Appendix A.



PART III PROJECT DIARY On-Site Observer ____________
Activity/Conference Form
February, 1990 Report

A. Name of the Activity/Conference

TCMS Dinner Meeting

B. What was the role of the Collaborative Project?

_x_ planned the event
___ funded the event
___ funded participants to attend
___ other (please specify):
_x_ publicized the event
_x_ sponsored the event with another organization

C. If the Collaborative did not sponsor and/or fund the Activity/Conference, what organization did?

D. Brief description of the Activity/Conference

Speaker (include affiliation and topic) or Program:

Prof. Joe Konhauser - See attached announcement

Date(s) and Times:
Feb. 5, 1990 - 5:30 reception
and Exhibit at Olin Hall - 6:30 Dinner Wyerhauser Hall

Location: Macalester College

E. Purpose of the Activity/Conference (On which issues did the event focus? Why was the event held?)

Regular Dinner Meeting - Macalester hosted this to celebrate rennovated facilities

F. Attendance

1. How many (and who) actually attended? Total number: _60_

30	Collaborative teachers	16	Representatives from* business or industry
___	Collaborative director	15	Representatives from higher education
___	Collaborative coordinator	3	Other (please specify): me and 1 retired business person who is a volunteer math tutor and 1 student.
5	Non-collaborative teachers		
___	School administrators		

(Please attach a list of attendees, if available.)

*4 of these are former students of Prof. Konhauser

(Continue on other side.)

F. Attendance (Continued)

The mailing list.

2. Who was invited to attend/participate in the activity/conference?

3. If enrollment was limited, how were participants selected?

4. Was the attendance as anticipated?

Yes or perhaps better

G. Teacher Support

1. Did teachers receive any financial support, (i.e., a stipend; reimbursement for travel; registration fees)? _no_

If yes, please specify the type of support, the amount, and who provided it.

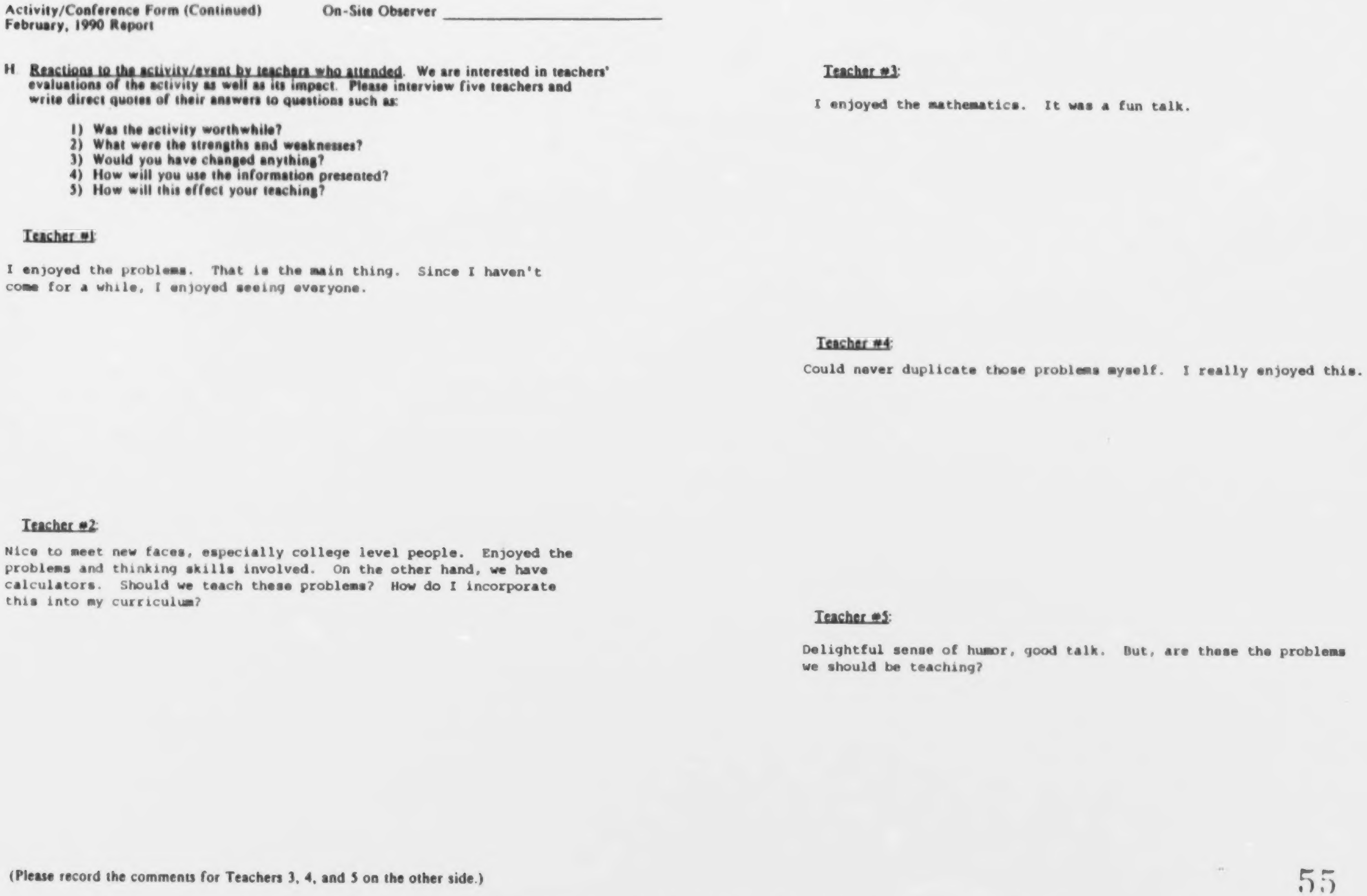
2. Were teachers given any other form of compensation, (i.e., continuing education credits, classroom materials)? _no_

If yes, please specify.

3. Were teachers released from school in order to attend the activity/conference? _no_

If yes, were substitute teachers provided? _no_ If so, who provided the funding?

Figure 7. Activity/Conference Form as completed by an on-site observer.



Activity/Conference Form (Continued) On-Site Observer ______________________
February, 1990 Report

H. Reactions to the activity/event by teachers who attended. We are interested in teachers' evaluations of the activity as well as its impact. Please interview five teachers and write direct quotes of their answers to questions such as:

1) Was the activity worthwhile?
2) What were the strengths and weaknesses?
3) Would you have changed anything?
4) How will you use the information presented?
5) How will this effect your teaching?

Teacher #1:

I enjoyed the problems. That is the main thing. Since I haven't come for a while, I enjoyed seeing everyone.

Teacher #2:

Nice to meet new faces, especially college level people. Enjoyed the problems and thinking skills involved. On the other hand, we have calculators. Should we teach these problems? How do I incorporate this into my curriculum?

(Please record the comments for Teachers 3, 4, and 5 on the other side.)

Teacher #3:

I enjoyed the mathematics. It was a fun talk.

Teacher #4:

Could never duplicate those problems myself. I really enjoyed this.

Teacher #5:

Delightful sense of humor, good talk. But, are these the problems we should be teaching?

Figure 7. Activity/Conference Form as completed by an on-site observer (continued).

Activity/Conference Form (Continued) **On-Site Observer** ______________________
February, 1990 Report

I. **Reactions from other attendees to the activity/event, i.e., University Professors, People from Business** **(Please write direct quotes and indicate the position that the person holds, as well as the role he/she had in the activity/event.)**

1. Business person -
Delightful - nifty program. Nice to come here. We do need this kind of thing--We need to continue to do this.

2. Professor -
Konhauser can just keep thinking of this stuff. He can think of 4 or 5 problems for each one I can think of.

3. Professor -
It's time Konhauser had a chance to speak.
He should have been invited long ago.

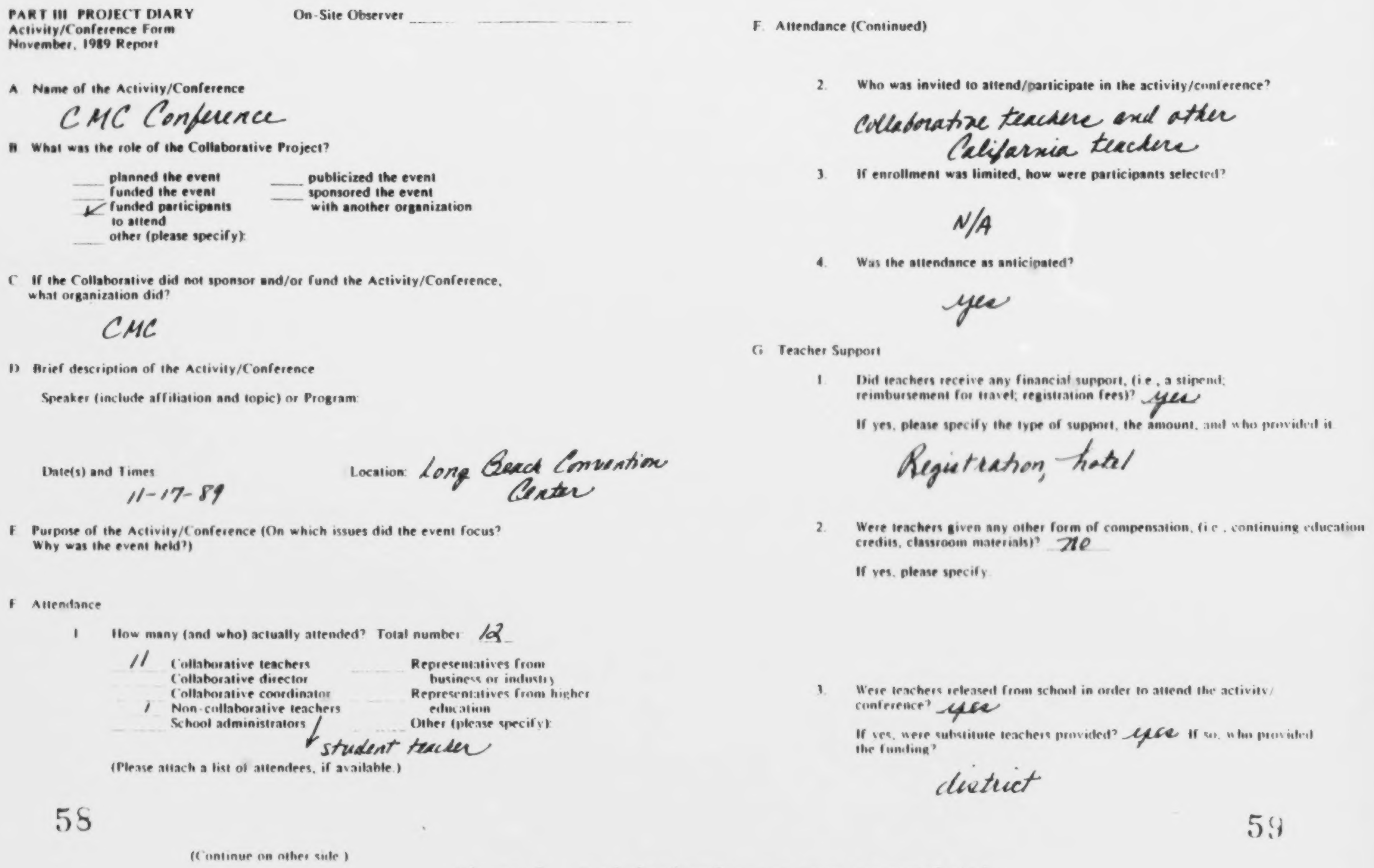
J. **Your own impressions of the activity/event**

1. **An evaluation of the activity in general (if you attended):**
This is a good dinner and meeting. Macalester did a very good job. See attached blue programs. This was part of a celebration for Macalester and the dinner was one event.

2. **Your perceptions of the comments made by the attendees:**

Accurate.

Figure 7. Activity/Conference Form as completed by an on-site observer (continued).



PART III PROJECT DIARY
Activity/Conference Form
November, 1989 Report

On-Site Observer ____________

A Name of the Activity/Conference

CMC Conference

B What was the role of the Collaborative Project?

___ planned the event
___ funded the event
✓ funded participants to attend
___ other (please specify):
___ publicized the event
___ sponsored the event with another organization

C If the Collaborative did not sponsor and/or fund the Activity/Conference, what organization did?

CMC

D Brief description of the Activity/Conference

Speaker (include affiliation and topic) or Program:

Date(s) and Times: 11-17-89

Location: Long Beach Convention Center

E Purpose of the Activity/Conference (On which issues did the event focus? Why was the event held?)

F Attendance

1 How many (and who) actually attended? Total number: 12

11 Collaborative teachers
___ Collaborative director
___ Collaborative coordinator
1 Non-collaborative teachers
___ School administrators
___ Representatives from business or industry
___ Representatives from higher education
___ Other (please specify):

student teacher

(Please attach a list of attendees, if available.)

(Continue on other side.)

F. Attendance (Continued)

2. Who was invited to attend/participate in the activity/conference?

Collaborative teachers and other California teachers

3. If enrollment was limited, how were participants selected?

N/A

4. Was the attendance as anticipated?

yes

G Teacher Support

1. Did teachers receive any financial support, (i.e., a stipend; reimbursement for travel; registration fees)? yes

If yes, please specify the type of support, the amount, and who provided it.

Registration, hotel

2. Were teachers given any other form of compensation, (i.e., continuing education credits, classroom materials)? no

If yes, please specify.

3. Were teachers released from school in order to attend the activity/conference? yes

If yes, were substitute teachers provided? yes If so, who provided the funding?

district

Figure 8. Activity/Conference Form as completed by an on-site observer.

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Activity/Conference Form (Continued)   On-Site Observer ______
November, 1989 Report

H **Reactions to the activity/event by teachers who attended.** We are interested in teachers' evaluations of the activity as well as its impact. Please interview five teachers and write direct quotes of their answers to questions such as:

1) Was the activity worthwhile?
2) What were the strengths and weaknesses?
3) Would you have changed anything?
4) How will you use the information presented?
5) How will this effect your teaching?

Teacher #1: The Collaborative did not pay for any of my registration. My school paid for a substitute. I paid for registration myself. CMC is one of the best conferences. It is better than NCTM. You get more "hands on" workshops. At NCTM you get more of the 'philosophical approach' and little practical materials.

Teacher #2: I very much enjoyed what I saw. The Alternative Assessments Workshop was what I wanted and I got to see it. I only went on Saturday but that was very good. (the sessions I attended on Saturday.)

Activity/Conference Form (Continued)   On-Site Observer ______
November, 1989 Report

I. **Reactions from other attendees to the activity/event, i.e., University Professors, People from Business** (Please write direct quotes and indicate the position that the person holds, as well as the role he/she had in the activity/event.)

1.

2.

3.

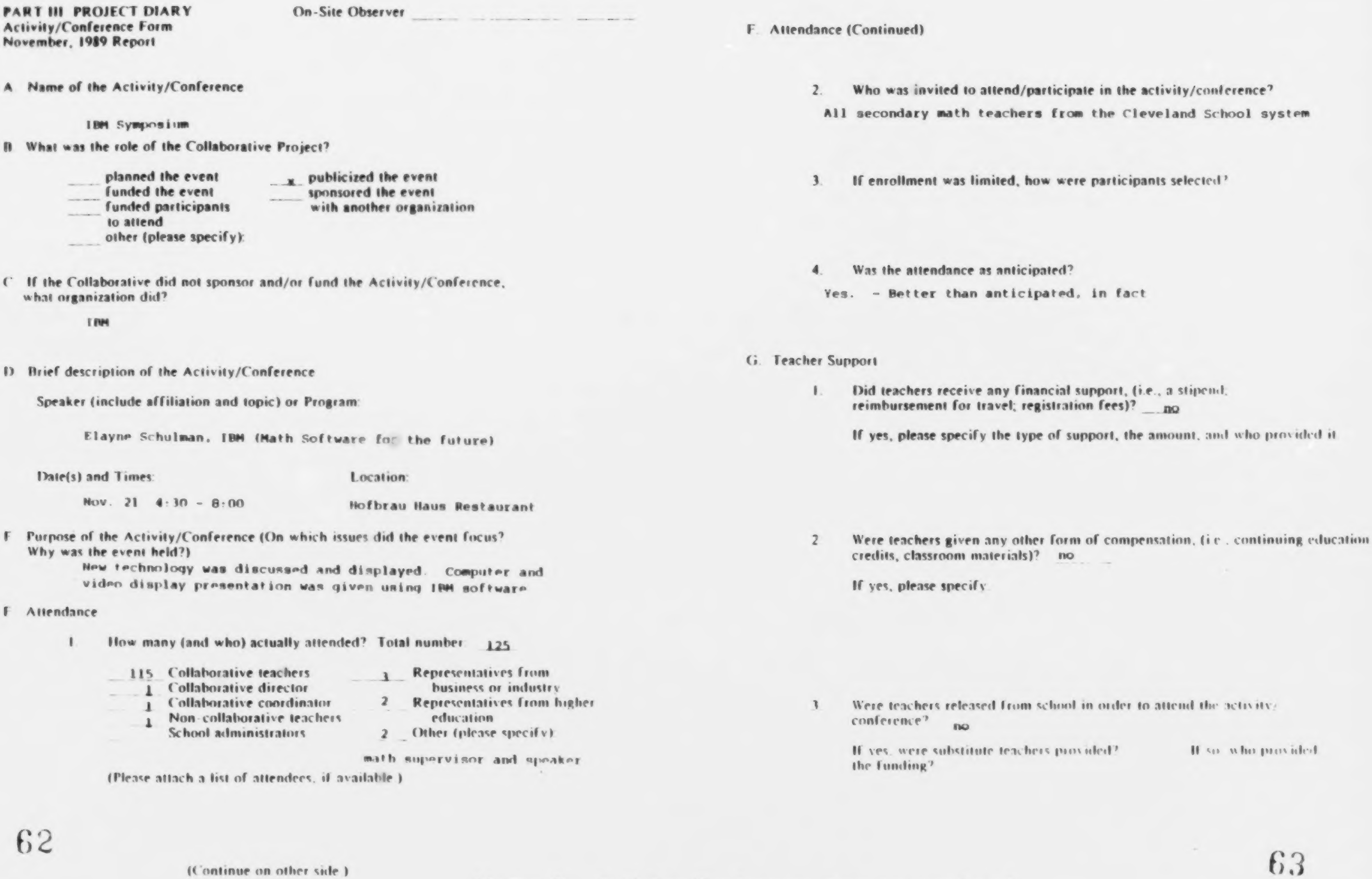
J. **Your own impressions of the activity/event**

1. An evaluation of the activity in general (if you attended):

2. Your perceptions of the comments made by the attendees:

Honest Realistic

Figure 8. Activity/Conference Form as completed by an on-site observer (continued).



PART III PROJECT DIARY
Activity/Conference Form
November, 1989 Report

On-Site Observer ____________

A. Name of the Activity/Conference

IBM Symposium

B. What was the role of the Collaborative Project?

____ planned the event
____ funded the event
____ funded participants to attend
____ other (please specify):
__x_ publicized the event
____ sponsored the event with another organization

C. If the Collaborative did not sponsor and/or fund the Activity/Conference, what organization did?

IBM

D. Brief description of the Activity/Conference

Speaker (include affiliation and topic) or Program:

Elayne Schulman, IBM (Math Software for the future)

Date(s) and Times:

Nov. 21 4:30 - 8:00

Location:

Hofbrau Haus Restaurant

E. Purpose of the Activity/Conference (On which issues did the event focus? Why was the event held?)

New technology was discussed and displayed. Computer and video display presentation was given using IBM software

F. Attendance

1. How many (and who) actually attended? Total number 125

115 Collaborative teachers
1 Collaborative director
1 Collaborative coordinator
1 Non-collaborative teachers
__ School administrators
3 Representatives from business or industry
2 Representatives from higher education
2 Other (please specify):

math supervisor and speaker

(Please attach a list of attendees, if available.)

(Continue on other side.)

F. Attendance (Continued)

2. Who was invited to attend/participate in the activity/conference?

All secondary math teachers from the Cleveland School system

3. If enrollment was limited, how were participants selected?

4. Was the attendance as anticipated?

Yes. - Better than anticipated, in fact

G. Teacher Support

1. Did teachers receive any financial support, (i.e., a stipend; reimbursement for travel; registration fees)? no

If yes, please specify the type of support, the amount, and who provided it.

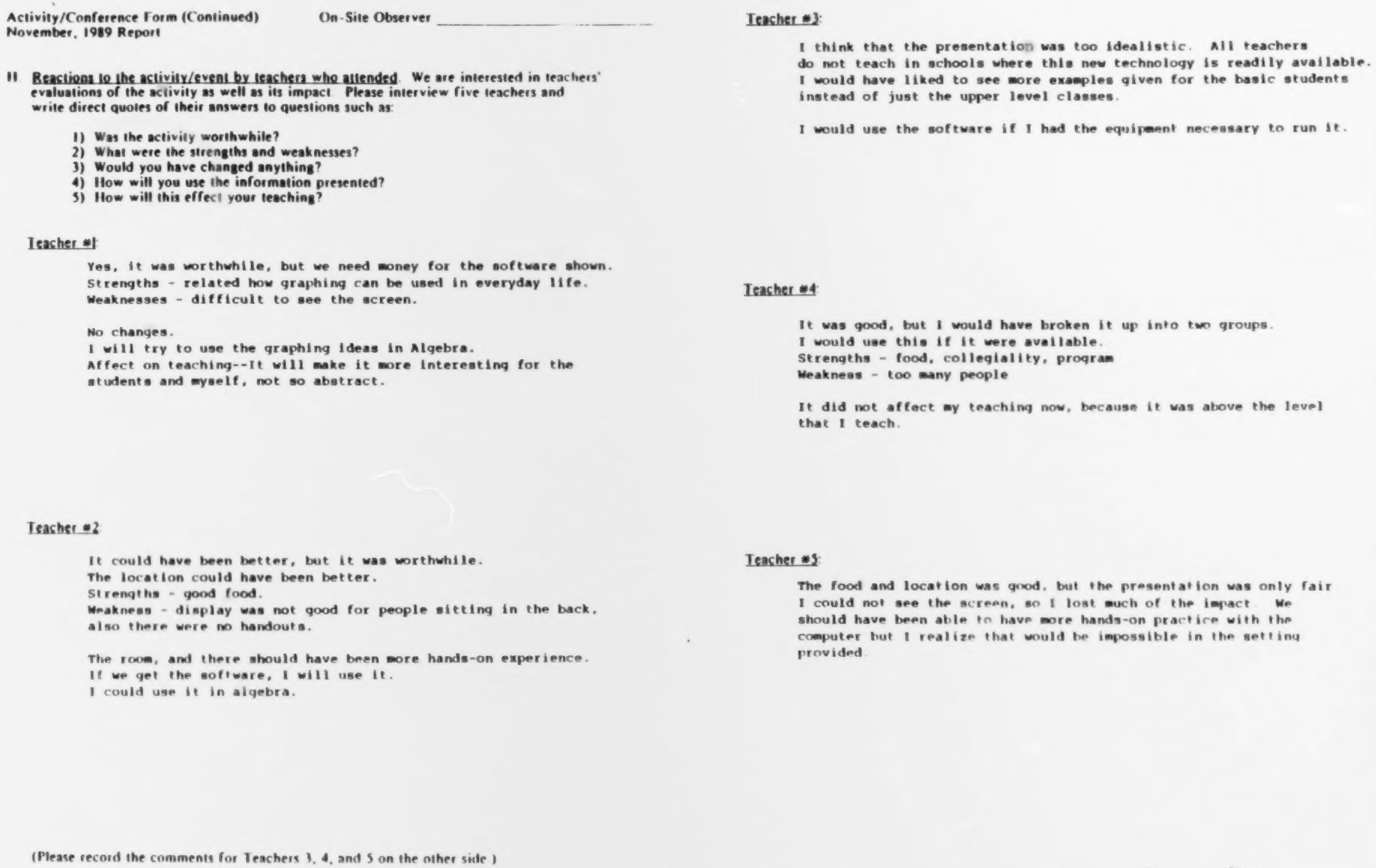
2. Were teachers given any other form of compensation, (i.e., continuing education credits, classroom materials)? no

If yes, please specify.

3. Were teachers released from school in order to attend the activity/conference? no

If yes, were substitute teachers provided? ____ If so, who provided the funding?

Figure 9. Activity/Conference Form as completed by an on-site observer.



Activity/Conference Form (Continued) On-Site Observer ______________________
November, 1989 Report

II. **Reactions to the activity/event by teachers who attended.** We are interested in teachers' evaluations of the activity as well as its impact. Please interview five teachers and write direct quotes of their answers to questions such as:

1) Was the activity worthwhile?
2) What were the strengths and weaknesses?
3) Would you have changed anything?
4) How will you use the information presented?
5) How will this effect your teaching?

Teacher #1:

Yes, it was worthwhile, but we need money for the software shown.
Strengths - related how graphing can be used in everyday life.
Weaknesses - difficult to see the screen.

No changes.
I will try to use the graphing ideas in Algebra.
Affect on teaching--It will make it more interesting for the students and myself, not so abstract.

Teacher #2:

It could have been better, but it was worthwhile.
The location could have been better.
Strengths - good food.
Weakness - display was not good for people sitting in the back, also there were no handouts.

The room, and there should have been more hands-on experience.
If we get the software, I will use it.
I could use it in algebra.

(Please record the comments for Teachers 3, 4, and 5 on the other side.)

Teacher #3:

I think that the presentation was too idealistic. All teachers do not teach in schools where this new technology is readily available. I would have liked to see more examples given for the basic students instead of just the upper level classes.

I would use the software if I had the equipment necessary to run it.

Teacher #4:

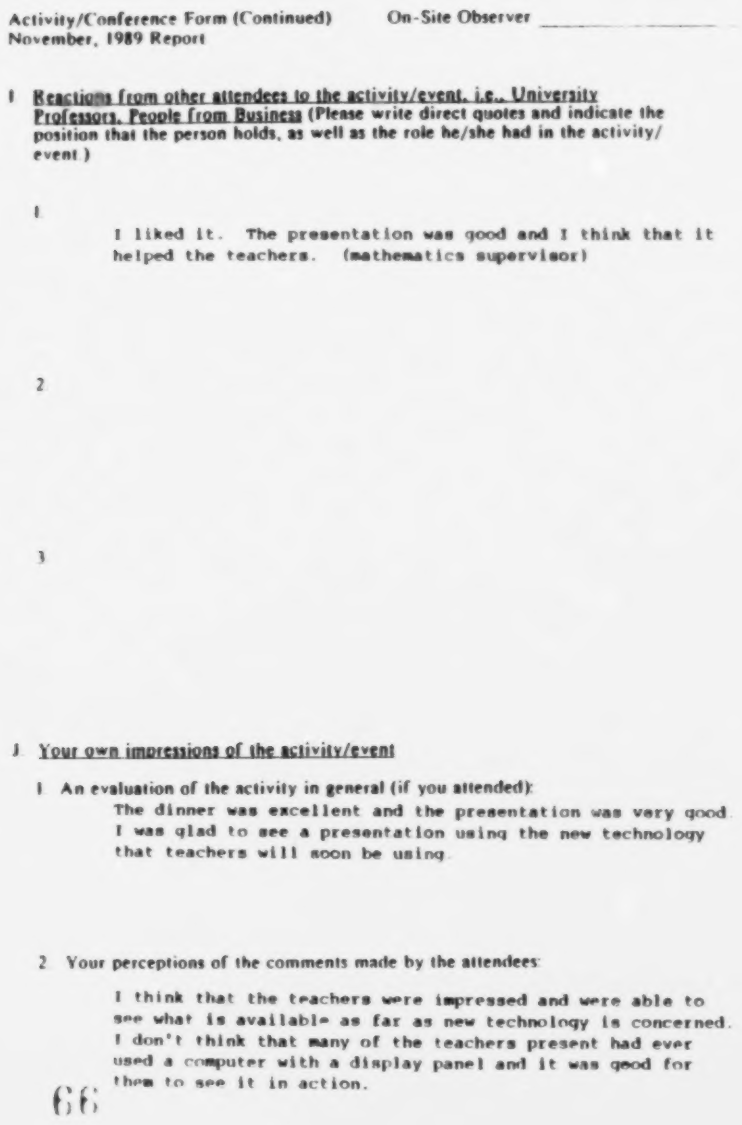
It was good, but I would have broken it up into two groups.
I would use this if it were available.
Strengths - food, collegiality, program
Weakness - too many people

It did not affect my teaching now, because it was above the level that I teach.

Teacher #5:

The food and location was good, but the presentation was only fair. I could not see the screen, so I lost much of the impact. We should have been able to have more hands-on practice with the computer but I realize that would be impossible in the setting provided.

Figure 9. Activity/Conference Form as completed by an on-site observer (continued).



Activity/Conference Form (Continued) On-Site Observer ________________
November, 1989 Report

I **Reactions from other attendees to the activity/event, i.e., University Professors, People from Business** (Please write direct quotes and indicate the position that the person holds, as well as the role he/she had in the activity/event.)

1

I liked it. The presentation was good and I think that it helped the teachers. (mathematics supervisor)

2

3

J **Your own impressions of the activity/event**

1 An evaluation of the activity in general (if you attended):

The dinner was excellent and the presentation was very good. I was glad to see a presentation using the new technology that teachers will soon be using.

2 Your perceptions of the comments made by the attendees:

I think that the teachers were impressed and were able to see what is available as far as new technology is concerned. I don't think that many of the teachers present had ever used a computer with a display panel and it was good for them to see it in action.

Figure 9. Activity/Conference Form as completed by an on-site observer (continued).

PART III PROJECT DIARY
Grant/Scholarship Form
March, 1990 Report

On-Site Observer_______________

A. **Name or type of grant/scholarship:**

Professional Development Workshops

B. **Purpose of the grant/scholarship:**

To allow teachers to share special talents and expertise with colleaques

C. **Total amount available** $7,500 **Amount (or range) of individual grants** 300 to 500

Who provided the funding?

Pew Charitable Trust and Chevron through PRISM, Math/Science Collaborative

D. **Who is eligible to apply?** Teachers from the School District of Philadelphia who teach science, mathematics or computer science

E. **How and when do teachers apply? (Please attach application form, if available.)**

Program was piloted in spring of 1989, with applications due for pilot program January 28, 1989.

F. **Who selects recipients?**

PRISM staff (at request of PRISM Teacher advisory committee who initiated the program).

What criteria are used?

value of topic to curriculum
well defined objectives
program that clearly meets its stated objectives

When are the awards made?

February 28, 1989

(Continue on other side.)

G. **How did the collaborative publicize the availability of the grants/scholarships?**

Through the Philadelphia Math Science Collab. calendar/newsletter.

H. **Did the collaborative offer assistance to teachers applying for grants/scholarships (i.e., grant-writing workshops, individual consultation, clerical support)? If yes, please specify.**

Help individually

I. **How many collaborative teachers applied?** 12

How many received grants/scholarships? 6

What were they specifically used for?

Activities for Math in Applications Classes
Algebra Courseware
Developing Computing Skills
Focus on Geometry
Computing Skills
Live animals in the classroom
(funds used for leader stipend, refreshments, and materials for participants to implement activities in classroom)

J. **Please list comments from grant/scholarship recipients regarding the collaborative's role in the grant/scholarship process.**

Figure 10. Grant/Scholarship Form as completed by an on-site observer.

E. Impact of the Collaborative

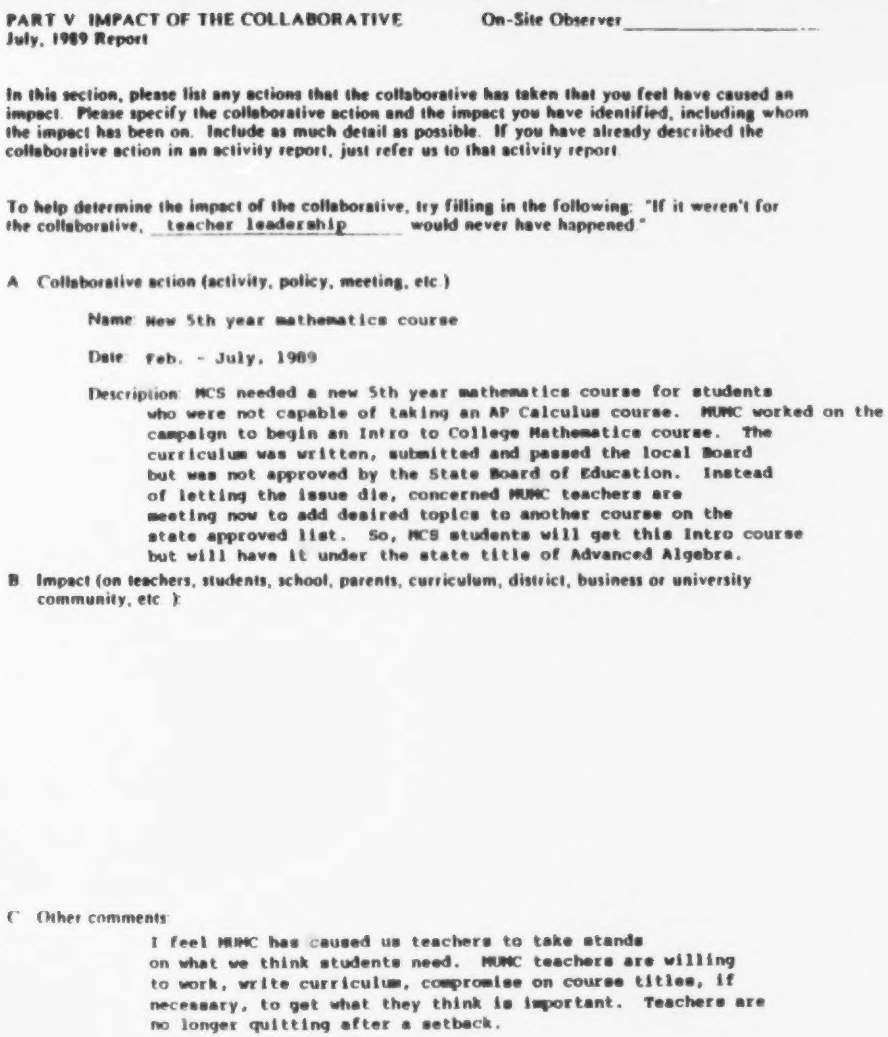
The final section of the Monthly Report provided the on-site observer with an opportunity to focus on the impact that the collaborative has had on teachers. The on-site observer was asked to identify an action taken by the collaborative that had impact, and then to describe the action and the impact that it had. To assist the on-site observer in identifying collaborative impacts, the form included the statement, *"If it weren't for the collaborative, ____________ would never have happened . . ."* The on-site observer was asked to reflect on the events of the past month and, when appropriate, complete the sentence. Figures 11 and 12 are examples of the Impact of the Collaborative section as completed by two on-site observers.

Electronic Network

The electronic network operated by the Technical Assistance Project at the Education Development Center for members of the UMC project was an important source of information and communication. The network, which originally employed Common Ground and then in 1989 upgraded to The Bread Board System (TBBS), was open to members of all the collaboratives, as well as to experts in fields related to the focus of the UMC effort. In addition to providing an opportunity for one-on-one exchange through a "mailbox" system, the network operated a variety of forums to facilitate open conversations on specific topics, including geometry, algebra, assessment, equity, teacher professionalism, and outreach grants, as well as notices that were of general interest to network users. The electronic network provided an easy and efficient way for Documentation Project staff to receive information, request additional information, and verify information collected.

Large-Scale Surveys

Over the course of the five years during which the Documentation Project recorded the development of the UMC project, four large-scale surveys were administered to teachers at the eleven sites: (1) Secondary Mathematics Teacher Questionnaire: Teacher



PART V IMPACT OF THE COLLABORATIVE **On-Site Observer**________________
July, 1989 Report

In this section, please list any actions that the collaborative has taken that you feel have caused an impact. Please specify the collaborative action and the impact you have identified, including whom the impact has been on. Include as much detail as possible. If you have already described the collaborative action in an activity report, just refer us to that activity report.

To help determine the impact of the collaborative, try filling in the following: "If it weren't for the collaborative, teacher leadership **would never have happened."**

A. Collaborative action (activity, policy, meeting, etc.)

Name: New 5th year mathematics course

Date: Feb. - July, 1989

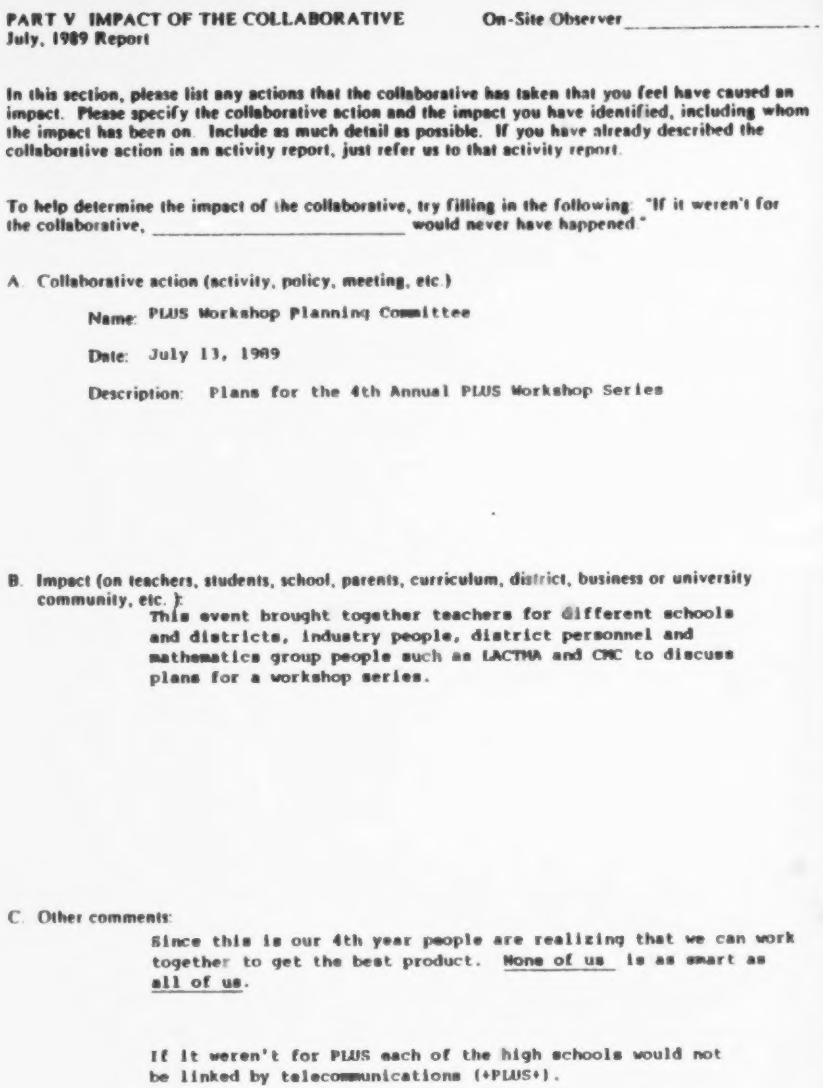
Description: MCS needed a new 5th year mathematics course for students who were not capable of taking an AP Calculus course. MUMC worked on the campaign to begin an Intro to College Mathematics course. The curriculum was written, submitted and passed the local Board but was not approved by the State Board of Education. Instead of letting the issue die, concerned MUMC teachers are meeting now to add desired topics to another course on the state approved list. So, MCS students will get this Intro course but will have it under the state title of Advanced Algebra.

B. Impact (on teachers, students, school, parents, curriculum, district, business or university community, etc.):

C. Other comments:

I feel MUMC has caused us teachers to take stands on what we think students need. MUMC teachers are willing to work, write curriculum, compromise on course titles, if necessary, to get what they think is important. Teachers are no longer quitting after a setback.

Figure 11. Impact of the Collaborative Form as completed by an on-site observer.



PART V IMPACT OF THE COLLABORATIVE **On-Site Observer**________________
July, 1989 Report

In this section, please list any actions that the collaborative has taken that you feel have caused an impact. Please specify the collaborative action and the impact you have identified, including whom the impact has been on. Include as much detail as possible. If you have already described the collaborative action in an activity report, just refer us to that activity report.

To help determine the impact of the collaborative, try filling in the following: "If it weren't for the collaborative, ________________ **would never have happened."**

A. Collaborative action (activity, policy, meeting, etc.)

Name: PLUS Workshop Planning Committee

Date: July 13, 1989

Description: Plans for the 4th Annual PLUS Workshop Series

B. Impact (on teachers, students, school, parents, curriculum, district, business or university community, etc.):

This event brought together teachers for different schools and districts, industry people, district personnel and mathematics group people such as LACTMA and CMC to discuss plans for a workshop series.

C. Other comments:

Since this is our 4th year people are realizing that we can work together to get the best product. None of us is as smart as all of us.

If it weren't for PLUS each of the high schools would not be linked by telecommunications (+PLUS+).

Figure 12. Impact of the Collaborative Form as completed by an on-site observer.

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Background Survey, (2) Teacher Survey: Survey on Teacher Professionalism, (3) Teacher Survey III: Survey on Mathematics Conceptions, and (4) Teacher Survey IV: Follow-Up Survey on Teacher Professionalism. The Secondary Mathematics Teacher Questionnaire, administered during 1986 and 1987, collected demographic information on the backgrounds and staff development training of UMC teachers, as well as data on mathematics instruction in their schools and their classes. The information gathered through this survey enabled the Documentation Project to compare UMC teachers with a national sample of teachers regarding education, training, experience, and other related topics. The Survey on Teacher Professionalism, originally administered during the 1986-87 school year, measured teachers' views about teaching as a profession. Teacher Survey III: The Survey on Mathematics Conceptions, administered during the spring of 1988, investigated teachers' views of mathematics and mathematics education. During the 1989-90 school year, which was the final year of formal data collection by the UMC Documentation Project, Teacher Survey IV: Follow-Up Survey on Teacher Professionalism was administered to identify changes in teachers' views about teaching as a profession. Six questions that addressed the impact of the collaborative were added to the original survey on professionalism. A copy of each of the four large-scale surveys is presented in Appendix D.

Following an analysis of the data for each of the surveys, a technical report was prepared. The reports of the surveys that addressed teacher professionalism and teachers' conceptions of mathematics also incorporated information from the teacher interviews that had been gathered by the on-site observer through the Diary of Professional Relationships (see Appendix C). A series of four technical reports was prepared:

Characteristics and Attitudes of Frequent Participants in the Urban Mathematics Mathematics Collaboratives: Results of the Secondary Mathematics Teacher Questionnaire. J. A. Middleton, N. L. Webb, T. A. Romberg, S. D. Pittelman, G. M. Richgels, A. J. Pitman, & E. M. Fadell, October, 1989.

Mathematics Teachers' Views About Teaching as a Profession: An Initial Assessment. T. A. Romberg, A. J. Pitman, S. D. Pittelman, N. L. Webb, E. M. Fadell, & J. A. Middleton, October, 1988.

Teachers' Conceptions of Mathematics and Mathematics Education.
J. A. Middleton, N. L. Webb, T. A. Romberg, & S. D. Pittelman,
November, 1990.

Mathematics Teachers' Views About Teaching as a Profession: A Final Assessment. J. A. Middleton, A. J. Pitman, N. L. Webb, T. A. Romberg, (in press).

The series provides quantitative data describing the teachers in the UMC project and their views on issues associated with the project's focus. The reports were distributed to all of the collaborative projects as well as to a broader audience of administrators and scholars interested in the UMC project, the mathematics reform movement, or the areas of teacher professionalism or collaboration.

Demographic Surveys

Twice during the five-year data collection period, the Documentation Project sent a Demographic Survey to collaborative school districts. The surveys requested information about the school district, including population data, budget information, school composition, teacher profiles, and data on the student population. The information from the two surveys provided a background for the information that was reported by the on-site observer in the Context Diary of the Monthly Report. A copy of the Demographic Survey that was distributed in June, 1990, is presented in Appendix E.

Site Visits

Every year, members of the Documentation Staff visited each site several times. Site visits typically involved classroom observations, conversations with teachers and collaborative staff, and interviews with district mathematics specialists and district administrators. These visits provided an opportunity for us to gain information about the collaborative from the perspective of someone who was "outside." Site visits also provided an occasion to check the reliability of information that had been gathered, as well as to collect first-hand impressions of specific activities.

An effort was made to schedule site visits to coincide with collaborative activities so that the documenter could attend a collaborative event. Over the years, the Documentation Project staff attended several board meetings, workshops, and presentations and met with associates from business and higher education. One site visit to each collaborative was devoted to reviewing the Documentation Project's draft of the collaborative's section of the Annual Report with the collaborative director or coordinator as a means of both verifying and validating the information included in the report. This process proved a valuable procedure for the staffs of both the Documentation Project and the collaboratives.

Near the end of the five-year period for data collection, the UMC Documentation staff made a final site visit to each of the collaboratives. This visit was devoted to interviewing people who either had played a central role in the collaborative or had knowledge of the collaborative. Approximately a dozen people were interviewed at each site, including collaborative administrators, host agency officials, teachers, principals, school district administrators, business associates, representatives from higher education, and collaborative office staff. The purpose of the visit was to record individual perspectives on the impact of the collaborative, the anticipated and unanticipated outcomes of the project, and what could have been done differently. Each person who was interviewed was asked to describe his or her involvement with the collaborative, the changes that had taken place because of the collaborative, the barriers to the development of the collaborative, what should have been done differently, and how the collaborative had impacted on mathematics education in the area. The interviews were structured to ensure that those being interviewed remained focused on the questions, but that they were allowed enough freedom to enable impressions to develop and cause-and-effect links to be established.

Special UMC Functions

In addition to the site visits, members of the Documentation Staff attended the special functions related to the UMC project. These events served as valuable sources of information about individual collaborative projects as well as about the UMC Network as a whole. Among these meetings were the UMC receptions and working sessions at the Annual Meetings of the National Council of Teachers of Mathematics; the UMC Annual Meetings; meetings of UMC directors, of UMC coordinators, and of district mathematics supervisors; UMC Steering Committee meetings; and the UMC Leadership Workshops. After each of these meetings, as well as after each site visit, the Documentation Project staff prepared a report, describing the event as well as reactions to it. Staff members of the Documentation Project also participated in meetings with Barbara Scott Nelson and members of EDC at which the development of individual collaboratives was reviewed and plans for the future of the UMC Network discussed.

Case Studies

A case study component of the Documentation Project was initiated in December, 1987, under the direction of Professor Thomas Popkewitz of the University of Wisconsin-Madison. The project was designed to conduct case studies involving one or two teachers at each of the eleven collaboratives, six during 1987-88 and five during 1988-89. Two kinds of information were collected by the on-site ethnographer. The first described the professional lives, interactions, and thoughts of the teachers as they worked in the classroom; the relationship of their daily activities and views of the collaborative; and the changes they perceived to have occurred as a result of their collaborative involvement. The second addressed the teachers' conceptions of mathematics and the teaching of mathematics, and the assumptions and implications that could be drawn from their pedagogical reasoning. The case studies describe the collaborative's effect on teachers' everyday lives in schools and in classrooms, on their successes and frustrations, and on the tensions of the reform process itself. The completed set of case studies, which focus on a variety of teachers whose professional lives have been affected by the UMC project, will be published in a report in early summer of 1991.

The UMC Annual Report

Each year, the UMC Documentation Project staff prepared an Annual Report to the Ford Foundation. The information was organized so that the Annual Report described a school year, July 1-June 30, rather than a calendar year. The report narrative contained a brief overview of each collaborative and a detailed description of the roles the Ford Foundation, the Technical Assistance and Outreach Projects at the Education Development Center, and the Documentation Project each played in the UMC Network. The report also included a section in which Documentation Project staff reflected on the growth and development of the UMC project during the year. In this section, the issues of Project Management, Collaboration, Teacher Professionalism, and Mathematics Focus were addressed in light of the total UMC Network. These four topic areas were central to the goal of the UMC project to enhance the professional lives of mathematics teachers through collaboration. It is also in this section that the similarities and differences of the eleven collaboratives are noted, as well as the impact that the collaborative projects, viewed as a collective unit, have had and the challenges that they face.

The appendix of the Annual Report contained a detailed summary report for each of the collaboratives. The summary report was comprised of six sections: A. Purpose, B. Context, C. Development of the Collaborative, D. Project Activities, E. Observations, and F. Next Steps.

A. Purpose - The goals of the collaborative were presented in this section of the report. The information was gathered primarily from collaborative proposals, minutes of meetings of governing bodies, and on-site visits by members of the Documentation Project.

B. Context - Descriptive information about the social, political, economic, and professional environments in which the collaborative operated was presented in this section of the report. The primary sources of information were the Context Section of the Monthly Report, newspaper articles submitted by the on-site observers, and data from the Demographic Survey that had been sent to the school systems by the UMC Documentation Project.

C. Development of the Collaborative - This section of the report described the management structure of the collaborative and any changes that had occurred in that structure during the reporting period. Descriptions of the collaborative's governing bodies and summaries of key meetings were incorporated. The information reported in this section was gathered from minutes of meetings of collaborative governing boards and committees, as well as from observations by the on-site observers, collaborative newsletters, proposals, electronic communications, and on-site visits by members of the Documentation Project that included discussions with collaborative administrators and teachers.

D. Project Activities - This section of the report included descriptions of each activity in which the collaborative played a role. The activities were organized by type (Workshops, Dinner Meetings, Grants, Regional and National Conferences) and then reported chronologically within type. Descriptions of teacher resource centers established by the collaborative and of collaborative newsletters also were included in this section of the report. Primary sources of information included the Project Diaries submitted by the on-site observer as part of the Monthly Report, articles from collaborative newsletters, minutes of meetings of governing bodies as well as materials distributed at these meetings, messages sent over the electronic network, articles from the UMC <Angles> newsletter published by the Outreach Project at the Education Development Center, and on-site visits by members of the Documentation Project.

E. Observations - This section provided an opportunity for the staff of the Documentation Project to look back over the year and reflect on changes that had occurred within a collaborative. The observations focused on four areas: Project Management, Collaboration, Professionalism, and Mathematics Focus. Depending on the specific goals of the collaborative project, other areas were addressed in the Observations section as well.

F. Next Steps - In this final section of the summary report for each collaborative, activities that were scheduled for the future were described. Changes that were anticipated in the collaborative structure or within the social, economic, political or professional environments in which the project operated were also reported.

The process of producing each Annual Report to the Ford Foundation included synthesizing the information that had been entered on the data base as well as the information in the files, drafting the summary report for each collaborative, sharing the drafts with the collaborative administrators and on-site observers, and modifying the reports in response to each site's comments. The discussions and negotiations between the collaborative principals and the Documentation Project staff proved to be an extremely important part of the report-writing process.

The completed Annual Report, like the technical reports that present the survey data, are distributed to members of each collaborative project. They are also disseminated to a broader audience that includes representatives from the business and industrial communities, school administrators, and scholars interested in the areas of teacher professionalism, collaboration, and the mathematics reform movement.

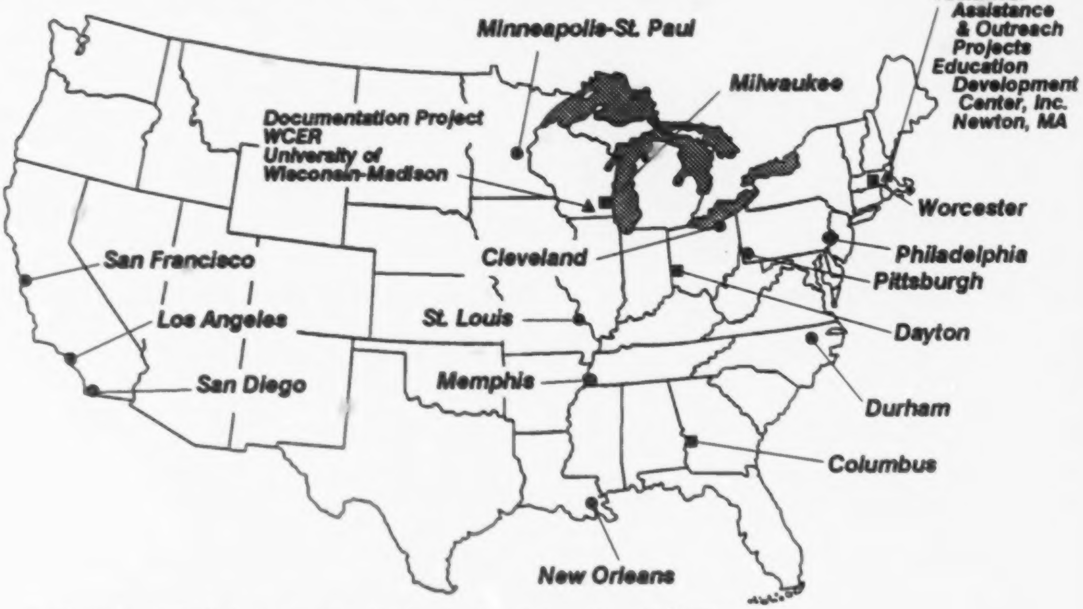
V. A FINAL NOTE

The UMC Network has flourished since the Ford Foundation first established the Urban Mathematics Collaborative project in 1985. More than a sum of its eleven diverse sites, the UMC project has evolved into a national network recognized by project administrators and teachers within individual sites as a key contributor to the development of collaboration on a variety of levels, as well as a force for mathematical reform. Not only has each of the eleven collaboratives survived the transition from Ford Foundation support to financial independence, but the network has expanded to encompass four new collaboratives--in Dayton, Ohio; Columbus, Georgia; Milwaukee, Wisconsin; and Worcester, Massachusetts--bringing the total number of collaboratives in the UMC Network to fifteen (see Figure 13).

Data collection by the UMC Documentation Project ended in June, 1990. We have recorded the history of each collaborative project as it was created and described its struggles to become self-sufficient. The real story, however, is just beginning. How the collaboratives will operate under permanence and how they will grow to meet the challenges they face will provide multiple experiences rich for documentation. The need for documentation is ongoing, although it is now up to the individual sites to assume this responsibility. This guide was created to offer assistance to the Urban Mathematics Collaboratives as they now become their own historians and documenters.

The
Urban Mathematics Collaborative Project

Funded by The Ford Foundation


Minneapolis-St. Paul
Milwaukee
Technical Assistance & Outreach Projects Education Development Center, Inc. Newton, MA
Documentation Project WCER University of Wisconsin-Madison
Worcester
San Francisco
Cleveland
Philadelphia
Pittsburgh
Los Angeles
St. Louis
Dayton
San Diego
Memphis
Durham
Columbus
New Orleans

- **Cleveland Collaborative for Mathematics Education (C^2ME)**
  Cleveland, Ohio
- **Durham Collaborative: The Durham Mathematics Council**
  Durham, North Carolina
- **Los Angeles Urban Mathematics/Science/Technology Collaborative (LAUM/S/TC)**
  Los Angeles, California
- **Memphis Urban Mathematics Collaborative**
  Memphis, Tennessee
- **New Orleans Mathematics Collaborative (NOMC)**
  New Orleans, Louisiana
- **Philadelphia Math Science Collaborative**
  Philadelphia, Pennsylvania
- **Pittsburgh Mathematics Collaborative**
  Pittsburg, Pennsylvania
- **St. Louis Urban Mathematics Collaborative**
  St. Louis, Missouri
- **San Diego Urban Mathematics Collaborative**
  San Diego, California
- **San Francisco Mathematics Collaborative**
  San Francisco, California
- **Twin Cities Urban Mathematics Collaborative**
  Minneapolis-St. Paul, Minnesota

Replication Sites

- **Columbus Regional Mathematics Collaborative (CRMC)**
  Columbus, Georgia
- **Dayton-Montgomery County Public Education Fund Mathematics Collaborative**
  Dayton, Ohio
- **Greater Worcester Urban Mathematics Collaborative**
  Worcester, Massachusetts
- **Milwaukee Metropolitan Mathematics Collaborative (M^3C)**
  Milwaukee, Wisconsin

Figure 13. The National Network of Urban Mathematics Collaboratives.

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APPENDIXES

- A. Monthly Report Form
    - Cover
    - Context Diary
    - Additional Comments
    - Project Diary
        - Activity/Conference Form
        - Grant/Scholarship Form
    - Diary of Professional Relationships
    - Impact of the Collaborative
- B. Sample Evaluation Forms for Activities
- C. Questions from the Diary of Professional Relationships (by topic)
- D. Large-Scale Surveys
    - Secondary Mathematics Teacher Questionnaire: Teacher Background Survey
    - Teacher Survey: Survey on Teacher Professionalism
    - Teacher Survey III: Survey on Mathematics Conceptions
    - Teacher Survey IV: Follow-Up Survey on Teacher Professionalism
- E. Demographic Survey 1989-90

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APPENDIX A

Monthly Report Form

- Cover
- Context Diary
- Additional Comments
- Project Diary
  - Activity/Conference Form
  - Grant/Scholarship Form
- Diary of Professional Relationships
- Impact of the Collaborative

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On-Site Observer ______________________ Date Received __________
(leave blank)

Name of Collaborative ______________

MONTHLY REPORT: March, 1990

PART I	Context Diary
PART II	Additional Comments
PART III	Project Diary
PART IV	Diary of Professional Relationships Topic: Teacher Professionalism
PART V	Impact of the Collaborative

Please complete the Monthly Report for March and mail it to the UMC Documentation Project no later than Monday, April 16. A postage-paid envelope has been provided for your convenience.

PART I CONTEXT DIARY
March, 1990 Report

On-Site Observer ____________________

In this section of the Monthly Report please record any major changes or events that occurred in the school district or in the community itself during the month of March. The information we are interested in includes, but is not limited to, the following areas: school board elections, political issues affecting the schools, changes in administration or key staff, new school policies or changes in curriculum that would affect mathematics teachers, negotiation of a new teacher contract, the opening or closing of a major industry.

Context information might be contained in such sources as newspapers; district newsletter or memos; school board minutes; teachers' union newsletters; and reports from universities, businesses, collaborative project and school district administrators, principals, and teachers.

(Please attach newspaper articles or other printed information when available and, if appropriate, highlight information that you feel is most relevant.)

PART II ADDITIONAL COMMENTS
March, 1990 Report

On-Site Observer ____________________

This section of the Monthly Report can be used for any information which you want to share that will not conveniently fit into the other parts of the Monthly Report. This may include such information as comments or opinions related to the collaborative made by teachers; principals; mathematicians from business, industry, or higher education; parents; etc. Or you might have some personal observations and insights that would be valuable to us, or questions and issues you feel we should probe. (Do not feel compelled to write on this page, but please do report anything that you feel would enhance our understanding of your collaborative.)

A. Development of the Collaborative:

B. Permanence (include who is looking at permanence and how they are doing it, what issues are being addressed, and what solutions are being generated.)

C. Collaboration:

(Continue on other side.)

D. Professionalism:

E. Math Focus:

F. Other Comments:

PART III PROJECT DIARY
March, 1990 Report

On-Site Observer ______________________

Information regarding any activities or events that were attended by members of the collaborative, or grants of financial support should be recorded in this section of the Monthly Report.

Please complete an Activity/Conference Form for each event that occurred between Thursday, March 1, and Saturday, March 31. (Attach primary sources of information when available, e.g., announcements of meetings, agendas, minutes, evaluation forms, materials distributed at a meeting, flyers.)

Please complete a Grant/Scholarship Form for any grants for which collaborative teachers applied. (Attach grant/scholarship announcements, applications, and lists of recipients when available.)

Please list below the names and dates of any future activities that have been scheduled.

PART III PROJECT DIARY On-Site Observer ____________________
Activity/Conference Form
March, 1990 Report

A. Name of the Activity/Conference

B. What was the role of the Collaborative Project?

____ planned the event	____ publicized the event
____ funded the event	____ sponsored the event with another organization
____ funded participants to attend	
____ other (please specify):	

C. If the Collaborative did not sponsor and/or fund the Activity/Conference, what organization did?

D. Brief description of the Activity/Conference

Speaker (include affiliation and topic) or Program:

Date(s) and Times: Location:

E. Purpose of the Activity/Conference (On which issues did the event focus? Why was the event held?)

F. Attendance

1. How many (and who) actually attended? Total number: ______

_______ Collaborative teachers	_______ Representatives from business or industry
_______ Collaborative director	
_______ Collaborative coordinator	_______ Representatives from higher education
_______ Non-collaborative teachers	
_______ School administrators	_______ Other (please specify):

(Please attach a list of attendees, if available.)

(Continue on other side.)

F. Attendance (Continued)

2. Who was invited to attend/participate in the activity/conference?

3. If enrollment was limited, how were participants selected?

4. Was the attendance as anticipated?

G. Teacher Support

1. Did teachers receive any financial support, (i.e., a stipend; reimbursement for travel; registration fees)? ________

   If yes, please specify the type of support, the amount, and who provided it.

2. Were teachers given any other form of compensation, (i.e., continuing education credits, classroom materials)? ________

   If yes, please specify.

3. Were teachers released from school in order to attend the activity/conference? ________

   If yes, were substitute teachers provided? ________ If so, who provided the funding?

Activity/Conference Form (Continued) On-Site Observer ______________________
March, 1990 Report

H. Reactions to the activity/event by teachers who attended. We are interested in teachers' evaluations of the activity as well as its impact. Please interview five teachers and write direct quotes of their answers to questions such as:

1) Was the activity worthwhile?
2) What were the strengths and weaknesses?
3) Would you have changed anything?
4) How will you use the information presented?
5) How will this effect your teaching?

Teacher #1:

Teacher #2:

(Please record the comments for Teachers 3, 4, and 5 on the other side.)

Teacher #3:

Teacher #4:

Teacher #5:

Activity/Conference Form (Continued) On-Site Observer ____________________
March, 1990 Report

I. Reactions from other attendees to the activity/event, i.e., University Professors, People from Business (Please write direct quotes and indicate the position that the person holds, as well as the role he/she had in the activity/event.)

1.

2.

3.

J. Your own impressions of the activity/event

1. An evaluation of the activity in general (if you attended):

2. Your perceptions of the comments made by the attendees:

PART III PROJECT DIARY
Grant/Scholarship Form
March, 1990 Report

On-Site Observer ____________________

A. Name or type of grant/scholarship:

B. Purpose of the grant/scholarship:

C. Total amount available _____ Amount (or range) of individual grants _______

Who provided the funding?

D. Who is eligible to apply?

E. How and when do teachers apply? (Please attach application form, if available.)

F. Who selects recipients?

What criteria are used?

When are the awards made?

(Continue on other side.)

G. How did the collaborative publicize the availability of the grants/scholarships?

H. Did the collaborative offer assistance to teachers applying for grants/scholarships (i.e., grant-writing workshops, individual consultation, clerical support)? If yes, please specify.

I. How many collaborative teachers applied? ____________

How many received grants/scholarships? __________

What were they specifically used for?

J. Please list comments from grant/scholarship recipients regarding the collaborative's role in the grant/scholarship process.

PART IV: DIARY OF PROFESSIONAL RELATIONSHIPS

Topic: Teacher Professionalism
March 1990 Report

We are interested in continuing to document teachers' views of professionalism. The 1990 information collected for this Diary will supplement the data being collected in the Teacher Survey on Professionalism. This is a follow-up to the information on professionalism collected three years ago.

Please interview five teachers who have been either frequent or occasional participants in collaborative events to get their reactions to these questions. Try to interview teachers whom you have not interviewed before.

For each teacher, please circle the level of participation in collaborative activities. It is not necessary to indicate the names of the teachers responding, however, if a teacher holds a special position (i.e., the department chair) please indicate that on the Interview Form.

Use the questions as guidelines for discussion and encourage teachers to elaborate on their responses. Please ask the teachers to give as many specific examples as possible.

1. a. What role do mathematics organizations play in improving mathematics instruction?

   b. What role should they play?

   c. Are you a member of any professional organizations? (Please List)

2. a. What impact should mathematics teachers have on determining the basic content that is taught in their mathematics courses?

   b. What impact do the mathematics teachers in your school have?

3. a. What role should mathematics teachers play in the evaluation of mathematics teachers?

   b. What role do the mathematics teachers in your school play in regard to the evaluation of other mathematics teachers?

4. Do you think of yourself primarily as a teacher or as a mathematician? Why?

5. What unique contributions to society are made by mathematics teachers that are different from the contributions made by other professionals, including teachers of other subjects?

6. How has the collaborative enhanced your view of yourself as a professional?

PART IV: DIARY OF PROFESSIONAL RELATIONSHIPS Date_______________
Topic: Teacher Professionalism Collaborative_______________

Interview Form

Teacher # ________ Position ______________________________

Level of Participation in Collaborative Activities--Circle one: frequent/occasional

1. a. What role do mathematics organizations play in improving mathematics instruction?

   b. What role should they play?

   c. Are you a member of any professional organizations? (Please List)

2. a. What impact should mathematics teachers have on determining the basic content that is taught in their mathematics courses?

   b. What impact do the mathematics teachers in your school have?

(Continue on the other side.)

3. a. What role should mathematics teachers play in the evaluation of mathematics teachers?

   b. What role do the mathematics teachers in your school play in regard to the evaluation of other mathematics teachers?

4. Do you think of yourself primarily as a teacher or as a mathematician? Why?

5. What unique contributions to society are made by mathematics teachers that are different from the contributions made by other professionals, including teachers of other subjects?

6. How has the collaborative enhanced your view of yourself as a professional?

PART V IMPACT OF THE COLLABORATIVE

March, 1990 Report

On-Site Observer____________________

In this section, please list any actions that the collaborative has taken that you feel have caused an impact. Please specify the collaborative action and the impact you have identified, including whom the impact has been on. Include as much detail as possible. If you have already described the collaborative action in an activity report, just refer us to that activity report.

To help determine the impact of the collaborative, try filling in the following: "If it weren't for the collaborative, ____________________________ would never have happened."

A. Collaborative action (activity, policy, meeting, etc.)

Name:

Date:

Description:

B. Impact (on teachers, students, school, parents, curriculum, district, business or university community, etc.):

C. Other comments:

APPENDIX B

Sample Evaluation Forms for Activities

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San Francisco Mathematics Collaborative
"Untracking the Curriculum Allows You to Untrack Students"
Sherry Fraser, guest speaker
February 8, 1990

Evaluation

We appreciate your cooperation in answering the following questions and sharing your thoughts.

Name (optional)____________________ Grade_____ Number of years teaching________

1) To what extent did the following influence your coming today:

	low				high
•opportunity to be updated on the latest information/issues in math education	1	2	3	4	5
•opportunity to interact with other math teachers	1	2	3	4	5
•the topic of the speaker's address	1	2	3	4	5

•other____________________________

Comments:

2) Please rate the following:

	low				high
•the speaker was knowledgeable about the issues involved	1	2	3	4	5
•the speaker stimulated my thinking about the issues	1	2	3	4	5
•the talk was relevant to my teaching	1	2	3	4	5
•there was ample time to talk with other math teachers	1	2	3	4	5
•the Math Collaborative did a satisfactory job of organizing the event	1	2	3	4	5

Comments:

3) Ideas for future Math Collaborative talks/activities:

San Diego City Schools
Staff Development and Training Department

Evaluation

ACTIVITY: ____________________ DATE: ______________

LOCATION: ____________________ TIME: ______________

PRESENTER(S): ________________________

____

1. How adequately did activity meet objective?

Not at all				Very much
1	2	3	4	5

2. Was activity useful?

YES: _____ NO: _____

3. What was most useful?

____

____

4. What would you have done to improve upon this activity?

____

____

5. Overall Evaluation:

Poor				Excellent
1	2	3	4	5

6. Suggested topics for future sessions:

____

____

Mathematics, Science and Technology Conference

Evaluation Questionnaire - Morning Program

In order to help us plan for future conferences that will meet your needs, we would appreciate your taking a few minutes to complete this evaluation. Thank you.

Name:__________________________ School:_______________________

Level (check one): Elementary_____ Secondary_____

Subject (check all that apply): Mathematics_____ Science_____

Computer Science_____ Other (specify)________________

Please indicate the session you attended and your ratings for that session in terms of its utility, interest, format and pace by circling the appropriate numerals on the scales below.

8:30 - 9:45

Group A Workshops/Sessions

1. Which one did you attend? Circle one: A1 A2 A3 A4 A5 A6 A7 A8 A9
2. Please circle one of the numerals on each scale below to indicate your ratings of the presentation (Note that for pace (d) a rating of 3 or 4 would indicate a good pace):

a.	Of Little or No Use	1	2	3	4	5	6	Extremely Useful
b.	Dull	1	2	3	4	5	6	Very Interesting
c.	Inappropriate Format	1	2	3	4	5	6	Excellent Format
d.	Pace Much Too Slow	1	2	3	4	5	6	Pace Much Too Fast

3. Comments regarding Group A Presentation: ______________________________

____

____

(Please turn this page over to respond to the Group B Presentations and the Keynote Address)

Welcome to side 5. Please continue.

10:00 - 11:15

Group B Workshops/Sessions

1. Which one did you attend? Circle one: B1 B2 B3 B4 B5 B6 B7 B8 B9

2. Please circle one of the numerals on each scale below to indicate your ratings of the presentation (Note that for pace (d) a rating of 3 or 4 would indicate a good pace):

a.	Of Little or No Use	1	2	3	4	5	6	Extremely Useful
b.	Dull	1	2	3	4	5	6	Very Interesting
c.	Inappropriate Format	1	2	3	4	5	6	Excellent Format
d.	Pace Much Too Slow	1	2	3	4	5	6	Pace Much Too Fast

3. Comments regarding Group B Presentation: ______________________________

____

____

11:15 - 12:15

Keynote Address

1. Please circle one of the numerals on each scale below to indicate your ratings of the keynote address (Note that for pace (d) a rating of 3 or 4 would indicate a good pace):

a.	Of Little or No Use	1	2	3	4	5	6	Extremely Useful
b.	Dull	1	2	3	4	5	6	Very Interesting
c.	Inappropriate Format	1	2	3	4	5	6	Excellent Format
d.	Pace Much Too Slow	1	2	3	4	5	6	Pace Much Too Fast

2. Comments regarding the Keynote Address: ______________________________

____

____

Mathematics, Science and Technology Conference

Evaluation Questionnaire - Afternoon Program

Even though you gave us this information this morning, please tell us who you are. Then, respond to the questions below about the afternoon presentations and the conference in general.

Name ______________________________ School: ___________________________

Level (check one): Elementary_____ Secondary_____

Subject (check all that apply): Mathematics_____ Science_____

Computer Science_____ Other (specify)_________________

Please indicate the session you attended and your ratings for that session in terms of its utility, interest, format and pace by circling the appropriate numerals on the scales below.

1:15 - 2:30

Group C Workshops/Sessions

1. Which one did you attend? Circle one: C1 C2 C3 C4 C5 C6 C7 C8 C9
2. Please circle one of the numerals on each scale below to indicate your ratings of the presentation (Note that for pace (d) a rating of 3 or 4 would indicate a good pace):

a.	Of Little or No Use	1	2	3	4	5	6	Extremely Useful
b.	Dull	1	2	3	4	5	6	Very Interesting
c.	Inappropriate Format	1	2	3	4	5	6	Excellent Format
d.	Pace Much Too Slow	1	2	3	4	5	6	Pace Much Too Fast

3. Comments regarding Group C Presentation: ________________________________

____

____

(Please turn this page over for the last of the questions)

4. What did you like best about the conference?

5. What did you like least about the conference?

6. If you have any comments or suggestions about the conference that you haven't communicated elsewhere, this is the place for them:

Thanks for your help in evaluating the conference. We expect to do a follow-up assessment in a couple of months. Keep your eyes peeled for it.

MUMC WORKSHOP EVALUATION

TOPIC________________________ SCHOOL________________________

INSTRUCTOR___________________ DATE__________________________

1. Were the goals of this workshop clear to you?

   Not clear 1 2 3 4 5 Clear

   Comments:

2. Were the methods used in this workshop effective in helping you to learn material?

   Not Effective 1 2 3 4 5 Effective

   Comments:

3. Did you find the facilitators/instructors to be helpful?

   Not Helpful 1 2 3 4 5 Helpful

   Comments:

4. Would you rate this session useful to you in your school?

   Not Useful 1 2 3 4 5 Useful

   Comments:

5. How would you rate your own participation?

   Inadequate 1 2 3 4 5 Adequate

   Comments:

6. Would you recommend this workshop to other teachers?

   Not Recommend 1 2 3 4 5 Highly recommend

   Comments:

7. What changes would you suggest for future workshops?

8. What additional needs do you have in regard to this topic?

CRAY ACADEMY - 1989
WORKSHOP EVALUATION

Name of Presenter ______________________________ **Workshop** ____________________

Please indicate your degree of agreement or disagreement with each of the following statements about the MATH, SCIENCE or TECHNOLOGY WORKSHOP you attended Monday, Tuesday, Wednesday, Thursday, Friday. (Please circle days of workshop).

Circle the number on the 5-point rating scale of 5 - Strongly Agree; 4 - Agree; 3 - Uncertain; 2 - Disagree; and 1 - Strongly Disagree.

The Workshop:	SA	A	U	D	SD
1. Increased my knowledge of new concepts/ information in my discipline.	5	4	3	2	1
2. Provided me with practical teaching strategies	5	4	3	2	1
3. Provided me with useful instructional materials	5	4	3	2	1
4. Will allow me to apply what I learned					
5. Increased my interest in this subject/discipline	5	4	3	2	1
6. Increased my confidence in teaching this subject/ discipline	5	4	3	2	1
7. Allowed me to exchange ideas with colleagues	5	4	3	2	1
8. Actively involved me in learning	5	4	3	2	1
9. Demonstrated relationships between math, science and technology	5	4	3	2	1
10. Provided ideas for problem solving, hands-on, interactive or cooperative group learning	5	4	3	2	1

Please use this space or the reverse side for comments, recommendations or general observations.

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APPENDIX C

Questions from the Diary of Professional Relationships

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Questions from the Diary of Professional Relationships

(Organized by Topic)

Professional Organizations

1. What services do professional mathematics education organizations provide for the average math teacher? What should they do?

2. Do professional mathematics education organizations play a role in changing school mathematics? Should they?

3. Are you affiliated with any professional mathematics organizations (not mathematics education organizations) e.g., Mathematics Association of America (MAA) Society for Industrial Applications of Mathematics (SIAM)? Do you think that these organizations have any impact on school mathematics? Should they?

4. Would you encourage expanding the membership of local professional mathematics education organizations to include mathematicians affiliated with businesses and universities? Why or why not?

Collegial Relationships

1. Do you feel comfortable discussing mathematics with mathematicians from businesses and universities?

2. Is it more beneficial to your teaching to meet with other high school math teachers than with mathematicians from businesses or universities? Why or why not?

3. Do you feel that university mathematicians would benefit from talking with high school math teachers on a regular basis?

4. Do you feel that mathematicians in businesses would benefit from talking with high school math teachers on a regular basis?

5. Do you feel more challenged intellectually when you meet with mathematicians from businesses and universities than when you meet with other high school math teachers?

Teachers Impact on the Content of Mathematics Courses

1. Have you had any formal opportunities to evaluate the content of the mathematics courses that you teach?

2. Do you have strong feelings regarding content that should be taught that is not currently being taught in the mathematics program in your high school?

3. Do you have strong feelings regarding content that is currently being taught that you feel should no longer be included in the mathematics program.

4. Do you think that the mathematics department in each high school should determine the mathematics curriculum that is taught in that school?

5. Do you as a teacher, or does your high school mathematics department collectively, have a say in the mathematics curriculum in your high school? Do you want to?

6. a. Who, in your opinion, should initiate changes in the high school mathematics curriculum? (i.e., high school mathematics teachers; high school mathematics departments; administrators in the District's Central Office; committees of teachers working through the District's Central Office; the School Board; the local mathematics education organization; mathematicians from businesses; mathematicians from Universities.)

   b. Who should have input into the content of the revised curriculum?

Teacher Evaluation

1. Who is responsible for evaluating your performance as a mathematics teacher?

2. Whom do you think should evaluate you?

3. On what basis is the evaluation made? (Are you observed teaching lessons as part of the evaluation process? If so, how often?)

4. Did teachers have any input in the development of the evaluation procedure? Should they have?

5. Is an evaluation report submitted? Do you have any input into that report? Do you feel that you should?

6. Have you had the opportunity to observe other math teachers teach? If so, how often?

7. Do you mind being observed by the person evaluating you? By other math teachers? Please explain.

Content Decisions

1. Who develops the overall objectives for the mathematics courses that you teach? Ideally, who would?

2. Who decides what content will be taught to reach those objectives? Who should make those decisions?

3. Who determines how that content is to be organized and sequenced? Who should?

4. Who selects the textbook that is used? Who do you feel should do the selection?

5. Who determines the types of activities and materials that are to be used each day to teach that content? Who should?

6. Who decides the format of the daily lessons? Who should?

Calling and Service

1. What is your impression of how people in your community regard mathematics teaching in relation to other professions?

2. Do you feel that the general public realizes the contribution that mathematics teachers make to society. Do mathematicians from business? From universities?

3. Do you believe that mathematics teachers provide an important service not only to their students, but to society as a whole?

4. Do you think of yourself primarily as a teacher or as a mathematician? Why?

5. Which do you think is more important for mathematics teachers--additional training in mathematics or additional training in instructional techniques?

6. Which do you enjoy more--doing mathematics or teaching mathematics?

Assorted Issues

1. What control do you have over the daily content of your classes?

   Do you feel the degree of control you have is appropriate? (Please explain your response.)

2. Do you feel you have the background and/or experience required to teach the subject matter of all the mathematics classes offered at your school? (Please explain your response.)

3. Do you think the parents of your students are in a position to make a valid judgement as to how well mathematics is taught at your school? Why or why not?

4. What are your reasons for teaching high school mathematics?

5. How does teaching high school mathematics fulfill your career goal?

Conceptions of Mathematics

1. What do you think mathematics is?

2. a. How has the collaborative affected your conception of what mathematics is?

   b. What interactions with representatives from business and industry have you had through the collaborative? How have they affected your conception of mathematics?

3. What do you want your students to get out of mathematics instruction?

4. How has your participation in the collaborative affected your goals for teaching mathematics?

5. What recommendations would you make to improve the mathematics curriculum in your school?

6. What are the key issues regarding mathematics education in your district and how will they affect your school?

7. What has influenced your teaching of mathematics (i.e., coursework in college, a high school mathematics teacher, colleagues, teaching experience, the collaborative)?

8. How has the collaborative affected your teaching of mathematics?

9. What do you think is the main purpose of high school?

10. How should students be assigned to high school mathematics courses? (i.e., interest, ability, age)?

11. What do you think equity in mathematics education refers to? Can schools achieve equity? If so, how?

Impact of Collaborative

1. What effect has [insert the name of your collaborative] had on the mathematics department in your school? On the department head? Please explain.

2. In what ways do you view the mathematics curriculum in your school differently as a result of the collaborative?

3. What effect has the collaborative had on your daily teaching?

4. What changes in your students' attitudes towards mathematics can you attribute to your participation in the collaborative?

5. In what way has your attitude towards your working conditions (i.e., class scheduling, release time, department office space, equipment, preparation time, cooperative planning) changed as a result of the collaborative? Have there been any changes in your working conditions that can be attributed to the collaborative?

6. What are the most significant changes that can be attributed, at least in part, to the collaborative?

7. What effect has [insert the name of your collaborative] had on the way in which you perceive your role as a teacher? Please explain.

8. What impact has the collaborative had on your participation in mathematics conferences or in professional organizations?

9. How has the collaborative helped or influenced your forming relationships with other mathematics teachers in your school. With teachers in other schools? With other mathematicians in business/industry? In higher education?

10. What effect has the collaborative had regarding your involvement in school-related decision-making procedures (i.e., textbook selection, curriculum decisions, assessment instruments)?

11. Has your awareness of the current trends in mathematics education nationwide increased as a result of the collaborative? Please explain.

12. What are the most significant changes that [you feel] can be attributed, at least in part, to the collaborative?

13. What effect has [insert the name of your collaborative] had on the way in which you perceive your role as a teacher? Please explain.

14. What effect has the collaborative had regarding your involvement in school-related decision-making procedures (i.e., textbook selection, curriculum decisions, assessment instruments)?

15. Has your awareness of the current trends in mathematics education nationwide increased as a result of the collaborative? Please explain.

Teacher Leadership

1. What is your perception of a teacher as a leader?

2. In your own mind, think of teachers you look to as taking on leadership roles in your school, in your district, in your community and in the collaborative.

   a. Without indicating their identity, explain why you see them as leaders.

   b. What qualities do they possess that indicate leadership?

   c. What have they done? What role do they play?

   d. Are they active in the collaborative? How?

3. How has the collaborative supported and encouraged teachers to assume leadership roles?

4. Has the collaborative affected your own development of leadership qualities? If so, how?

Teacher Professionalism

1. a. What role do mathematics organizations play in improving mathematics instruction?

   b. What role should they play?

   c. Are you a member of any professional organizations? (Please List)

2. a. What impact should mathematics teachers have on determing the basic content that is taught in their mathematics courses?

   b. What impact do the mathematics teachers in your school have?

3. a. What role should mathematics teachers play in the evaluation of mathematics teachers?

   b. What role do the mathematics teachers in your school play in regard to the evaluation of other mathematics teachers?

4. Do you think of yourself primarily as a teacher or as a mathematician? Why?

5. What unique contributions to society are made by mathematics teachers that are different from the contributions made by other professionals, including teachers of other subjects?

6. How has the collaborative enhanced your view of yourself as a professional?

APPENDIX D

Large-Scale Surveys

Secondary Mathematics Teacher Questionnaire: Teacher Background Survey

Teacher Survey: Survey on Teacher Professionalism

Teacher Survey III: Survey on Mathematics Conceptions

Teacher Survey IV: Follow-up Survey on Teacher Professionalism

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Urban Mathematics Collaborative Documentation Project
University of Wisconsin-Madison

Date ________________________
(month) (day) (year)

SECONDARY MATHEMATICS TEACHER QUESTIONNAIRE

Please fill in today's date in the upper right hand corner and your name, school, city, and state in the spaces provided below.

Name ______________________________________
(first) (last)

School ______________________________________

City, State __________________________________

Answer the questions on both sides of the following pages. All responses will be strictly confidential. Only summary information will be shared.

THANK YOU FOR YOUR COOPERATION IN COMPLETING THIS QUESTIONNAIRE.

SECTION A: BACKGROUND INFORMATION

1. Indicate your sex:

	(Circle one)
Male	1
Female	2

2. Indicate your ethnic origin:

	(Circle one)
a. White (not of Hispanic origin)	1
b. Black (not of Hispanic origin)	2
c. Hispanic	3
d. American Indian or Alaskan Native	4
e. Asian or Pacific Islander	5
f. Other (please specify) ______________________	6

3. How old are you? __________ (optional)

4. How many years have you taught? (Include the current year as one full year.) __________________

5. How many years have you taught each of the following? (Include the current year as one full year.)

   a. Mathematics _____
   b. Life sciences _____
   c. Physical sciences _____
   d. Earth sciences _____
   e. Computer awareness, literacy, programming _____

6. Indicate whether you belong to each of the following professional organizations.

(Circle "Yes" or "No" for each organization)

	Yes	No
a. Association for Computing Machinery	1	2
b. Association for Educational Data Systems	1	2
c. Mathematical Association of America	1	2
d. National Council of Teachers of Mathematics	1	2
e. School Science and Mathematics Association	1	2
f. National Association of Science and Mathematics Teachers	1	2
g. State-level mathematics education organization.	1	2
h. Local mathematics education organization	1	2

7. What is the highest academic degree you have earned?

Circle one: a. No Degree b. Associate c. Bachelor's
d. Master's e. Specialist or 6-Year Certificate f. Doctorate

For this degree, please indicate:

a. Your major: ____________________
b. The Insitution that granted the degree: ____________________
____
c. The year the degree was completed: ____________________

8. Check the box that best represents the number of all UNDERGRADUATE and GRADUATE credit hours (semester or quarter) you have accumulated in each of the course areas listed.

	SEMESTER						OR	QUARTER					
	None	1 to 5	5 to 8	9 to 12	13 to 24	25 or more		None	1 to 6	7 to 12	13 to 18	19 to 36	37 or more
EDUCATION COURSES:													
a. Methods of teaching secondary school mathematics													
b. Instructional uses of computers													
c. Other education courses													
MATHEMATICS AND SCIENCE COURSES													
d. College algebra, trigonometry, elementary calculus													
e. Advanced calculus, differential equations geometry													
f. Upper division probability, statistics													
g. Upper division abstract algebra, linear algebra, number theory													
h. Mathematical problem solving, applications of mathematics													
i. Foundations, history or philosophy of mathematics													
j. Computer science													

9. In what year did you last take a course for college credit in mathematics (not including computer courses) or in the teaching of mathematics? __________

10. What type of state teaching certification do you have?

	(Circle all that apply)	Date Issued
a. Regular certification	1	______
b. Temporary or emergency certification	2	______
c. Other certification	3	______
d. Not certified	4 - SKIP TO QUESTION 12	

11. In which subject areas do you have specialized state teaching certification?

	(Circle all that apply)	Date Issued
a. I do not have specialized certification in any particular subject area	1	______
b. Mathematics	2	______
c. Science (general)	3	______
d. Biology	4	______
e. Chemistry	5	______
f. Physics	6	______
g. Earth/space science	7	______
h. Computer science	8	______
i. Other (please specify)	9	______

____

____

____

SECTION B: STAFF DEVELOPMENT

12. During the last 12 months, what is the total amount of time you have spent on staff development in mathematics or the teaching of mathematics. (Include attendance at professional meetings, workshops, and conferences, but do not include formal courses either for college credit or CEU's.)

	(Circle one)	
a. None	1	(SKIP TO QUESTION 15)
b. Less than one day	2	
c. 1-2 days	3	
d. 3-5 days	4	
e. More than 5 days	5	

If you circled None (Number 1) SKIP TO QUESTION 15.

13. Indicate the sponsors or co-sponsors of these meetings, workshops, or conferences.

(Circle all that apply)

Your local school or district 1
Your state education agency 2
Private industry 3
A college or university 4
A professional association 5
National Science Foundation 6
National Aeronautics and Space Administration 7
U. S. Department of Energy 8
U. S. Department of Education 9
Other 10
Math collaboratives (please specify) 11

____

____

14. What support have you received for attending these professional meetings, workshops, and conferences?

(Circle all that apply)

Released time from teaching 1
Travel 2
Stipends 3
None 4
Other (please specify) 5

____

____

15. On a scale of 1 to 5, how convenient would you find each of the following times for in-service programs?

(Circle one on each line)

	Very Convenient				Very Inconvenient
After school	1	2	3	4	5
Evenings	1	2	3	4	5
Weekends	1	2	3	4	5
Summers	1	2	3	4	5
Teacher work days	1	2	3	4	5

16. How would you rate each of the following possible locations for in-service programs?

(Circle one on each line)

	Excellent	Good	Fair	Poor
At home (e.g., via TV, telecommunications, or correspondence . .	1	2	3	4
Your school building.	1	2	3	4
Another location in your district . . .	1	2	3	4
A local business or industry	1	2	3	4
A regional site, accessible to teachers from several districts . . .	1	2	3	4
A college or university	1	2	3	4

17. Think about a specific mathematics topic that you find difficult to teach.

a. What is the topic? ______________________________

b. On a scale of 1 to 5, how useful would each of the following be to you in facilitating your teaching of that topic?

(Circle one on each line)

	Not Useful				Extremely Useful
Learning more mathematics	1	2	3	4	5
Learning more about about applications of the mathematics	1	2	3	4	5
Learning new teaching methods	1	2	3	4	5
Learning about available instructional resources	1	2	3	4	5
Help in use of computers	1	2	3	4	5
More money to buy instructional materials	1	2	3	4	5
Discussing with other teachers what works for them	1	2	3	4	5
Observing a skilled teacher teaching that topic	1	2	3	4	5
Having time to develop instructional materials	1	2	3	4	5
More class time to teach the topic	1	2	3	4	5

SECTION C: MATHEMATICS INSTRUCTION IN YOUR SCHOOL

18. The following factors may affect mathematics instruction in your school as a whole. In your opinion, how great a problem is caused by each of the following?

(Circle one on each line)

	Serious Problem	Somewhat of a Problem	Not a Significant Problem
a. Belief that mathematics is less important than other subjects	1	2	3
b. Inadequate facilities	1	2	3
c. Insufficient funds for purchasing equipment and supplies	1	2	3
d. Insufficient numbers of textbooks	1	2	3
e. Poor quality of instructional materials	1	2	3
f. Inadequate access to computers	1	2	3
g. Lack of student interest in mathematics	1	2	3
h. Inadequate student reading abilities	1	2	3
i. Difficulty in maintaining discipline	1	2	3
j. Not enough time to teach mathematics	1	2	3
k. Lack of teacher interest in mathematics	1	2	3
l. Teachers inadequately prepared to teach mathematics	1	2	3
m. Student absences	1	2	3
n. Mainstreaming of handicapped students	1	2	3
o. "Pull-out" of students; e.g., Chapter 1, learning disabled	1	2	3
p. Lack of teacher planning time	1	2	3
q. Inadequate articulation of instruction across grade levels	1	2	3
r. Class sizes too large	1	2	3
s. Inadequate diversity of mathematics electives	1	2	3
t. Low enrollments in mathematics courses	1	2	3
u. Other (specify) ______________ ______________	1	2	3

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19. Are you currently teaching any courses you are not certified to teach? If yes, write in the code for this course. (Refer to the list of code numbers on page 14.)

			Code No.
Yes 1	Please specify:	a.	________
No 2		b.	________
		c.	________

20. Are you currently teaching any courses that you do not feel adequately qualified to teach? If yes, write in the code for the course. (Refer to the list of code numbers on page 14.)

			Code No.
Yes 1	Please specify:	a.	________
No 2		b.	________
		c.	________

SECTION D: YOUR MATHEMATICS TEACHING

The remaining questions relate to your mathematics teaching in a particular class. If you teach more than one class of mathematics per day, select one class for which these questions should be answered.

21. a. What is the title of this course? ________________

b. Indicate the code number of this course. ________________
(Refer to the list of code numbers at the end of the questionnaire.)

22. a. How many students are there in this class? ________________

b. Please indicate the number of students in this class in each race/sex category:

	Male	Female
White (not of Hispanic origin)	____	____
Black (not of Hispanic origin)	____	____
Hispanic	____	____
Asian or Pacific Islander	____	____
American Indian or Alaskan Native	____	____
Other: (Please specify) ________________	____	____

23. What is the duration of this course?

	(Circle one)
Year	1
Semester	2
Quarter	3
Other	4

(Please specify) ________________________

24. The ability makeup of this class is best described by which of the following? (Comparison should be with the average student in the grade.)

	(Circle one)
Composed primarily of high ability students	1
Composed primarily of low ability students	2
Composed primarily of average ability students . .	3
Composed of students of widely differing ability levels	4

25. On the average, about what percentage of this class's time allocated for mathematics instruction is spent in each of the following activities?

	Percent
a. Daily routines (such as passing out materials) . . .	_______
b. Interruptions (such as fire drills, school announcements, etc.)	_______
c. Getting students to behave	_______
d. Instruction	_______
Total	100%

26. Think about your plans for this class for the entire course. On a scale of 0 to 5, how much emphasis will each of the following objectives receive? (Circle one on each line.)

	None	Minimal Emphasis				Very Heavy Emphasis
a. Become interested in mathematics	0	1	2	3	4	5
b. Know mathematical facts, principles, algorithms, or procedures	0	1	2	3	4	5
c. Develop an attitude of inquiry	0	1	2	3	4	5
d. Develop an awareness of the importance of mathematics in everyday life	0	1	2	3	4	5
e. Perform computations with speed and accuracy	0	1	2	3	4	5
f. Develop an awareness of the importance of mathematics in the basic and applied sciences	0	1	2	3	4	5
g. Develop a systematic approach to solving problems?	0	1	2	3	4	5
h. Learn about the career relevance of mathematics	0	1	2	3	4	5

27. How often do you use each of the following techniques in teaching mathematics to this class? If a technique does not apply to your class, please circle 1, "Never."

	Never	Less Than Once a Month	At Least Once a Month	At Least Once a Week	Just About Daily
a. Lecture	1	2	3	4	5
b. Discussion	1	2	3	4	5
c. Student reports or projects .	1	2	3	4	5
d. Library work	1	2	3	4	5
e. Students working at chalkboard	1	2	3	4	5
f. Student using computers . . .	1	2	3	4	5
g. Students using calculators .	1	2	3	4	5
h. Students using hands-on, manipulative materials . .	1	2	3	4	5
i. Students doing seatwork assigned from the textbook	1	2	3	4	5
j. Students completing supplemental worksheets . .	1	2	3	4	5
k. Students working in teacher-led small groups	1	2	3	4	5
l. Students working in peer-led small groups	1	2	3	4	5
m. Student-to-student tutoring	1	2	3	4	5
n. Field trips, excursions . . .	1	2	3	4	5
o. Guest speakers	1	2	3	4	5
p. Teacher demonstrations . . .	1	2	3	4	5
q. Tests or quizzes	1	2	3	4	5
r. Homework assignments	1	2	3	4	5

28. For the following equipment and materials, please indicate the approximate number of days each is used in this mathematics class during the entire course. For those that you do not use, circle either 1, "Not needed" or 2, "Needed but not available."

(Circle one on each line)

	NOT USED		USED		
	Not Needed	Needed But Not Available	Less Than 10 Days	Between 10 and 50 Days	More Than 50 Days
a. Games and puzzles	1	2	3	4	5
b. Handheld calculators	1	2	3	4	5
c. Computers or computer terminals	1	2	3	4	5
d. Metric measurement tools (rulers, containers, weights, etc.)	1	2	3	4	5
e. Nonmetric measurement	1	2	3	4	5
f. Activity cards or kits	1	2	3	4	5
g. Numeration and place value manipulative (rods, blocks, etc.)	1	2	3	4	5
h. Geometric tools	1	2	3	4	5
i. Models and solids	1	2	3	4	5
j. Graph paper	1	2	3	4	5
k. Audio visual materials (including overhead projector)	1	2	3	4	5

29. a. Are you using one or more published textbooks or programs for teaching mathematics to this class?

	(Circle one)	
Yes	1	(GO TO QUESTION 30)
No	2	(GO TO QUESTION 29b)

b. Briefly describe what you are using instead of a published textbook or program. THEN SKIP TO QUESTION 32.

____

____

____

30. Indicate the title, author, publisher, copyright date, and edition of the one textbook/program used most often by the students in this class.

Title: ____

Author: ____

Publisher: ____________________ Copyright Date: ____________________

Edition: ____________________

31. Approximately what percentage of the textbook will you "cover" in this course?

	(Circle one)
Less than 25%	1
26-40%	2
41-65%	3
66-80%	4
81-90%	5
More than 90%	6

32. Are computers (microcomputers or mainframe) available for use with this class?

Yes	1	(GO TO QUESTION 33)
No	2	(GO TO QUESTION 36)

33. How many computers are available for student use?

______ terminals

______ microcomputers

34. How does your class use computers? (Circle all that apply)

a. Teacher demonstration using a computer	1
b. Learning how to program	2
c. Learning mathematics content	3
d. Drill and practice	4
e. Using simulations	5
f. Using computer graphics	6
g. Games	7
h. Testing and evaluation	8
i. Other	9

35. On the average, how many minutes per week does a typical student spend working with computers?

_______________________ minutes/week

36. Do you encourage students to use calculators for the following things in this class?

(Circle one on each line)

	Yes	No
a. Checking answers	1	2
b. Doing computations	1	2
c. Solving problems	1	2
d. Taking tests	1	2

37. On the average, how many minutes of mathematics homework is the typical student in this class expected to complete each day?

______________ minutes/day

PLEASE GO BACK AND CHECK THAT YOU HAVE RESPONDED TO ALL THE APPROPRIATE ITEMS. THANK YOU!

CODE LIST FOR COURSE TITLES

SECONDARY ONLY

MATHEMATICS	201	Mathematics, grade 7
	202	Mathematics, grade 8
	203	General mathematics, grade 9
	204	General mathematics, grades 10-12
	205	Business mathematics
	206	Consumer mathematics
	207	Pre-algebra/introduction to algebra
	208	First-year algebra
	209	Second-year algebra
	210	Geometry
	211	Trigonometry
	212	Probability/statistics
	213	Intro. computer awareness or literacy
	214	Advanced computer programming
	215	Computer programming
	216	Advanced placement computer science
	217	Remedial mathematics
	218	Advanced senior mathematics, not including calculus
	219	Advanced senior mathematics, including some calculus
	220	Calculus
	221	Advanced placement calculus
	222	Other mathematics

Urban Collaborative Documentation Project
University of Wisconsin - Madison

Date ______________________
(month) (day) (year)

TEACHER SURVEY

Please fill in today's date in the upper right hand corner and your name, school, city, and state in the spaces provided below. Then indicate your level of participation in Collaborative activities by circling the most appropriate response.

Name ______________________________
(first) (last)

School ______________________________

City, State ______________________________

Level of Participation in Collaborative Activities

Circle One: Never Occasionally Frequently

Answer the questions on both sides of the following pages. Then return the completed questionnaire in the envelope provided. Please seal the envelope and print your name on the outside. (Envelopes will not be opened until they reach Madison.)

All responses will be strictly confidential. Only summary information will be shared.

THANK YOU FOR YOUR COOPERATION IN COMPLETING THIS SURVEY.

The following questions are an attempt to gather information about the impressions of high school math teachers regarding a variety of issues. Some items should be answered in light of the way *you personally* feel and behave as a high school math teacher, while other items ask your perceptions of how *math teachers in general* feel and behave.

There are five possible responses to each item. If you STRONGLY AGREE with the statement, in that it corresponds to your own attitudes or behavior, or to your impression of the attitudes or behavior of math teachers in general, circle that response. Similarly, if you AGREE, DISAGREE, or STRONGLY DISAGREE with the statement, mark the appropriate response. The middle category, NEUTRAL, is designed to indicate that you have no opinion about the statement. Please answer *all* items, making sure that you have circled only ONE response for each item.

1. I feel out of place meeting with mathematicians from businesses and universities.

STRONGLY AGREE   AGREE   NEUTRAL   DISAGREE   STRONGLY DISAGREE

2. Math teachers believe in the social benefits of their work.

STRONGLY AGREE   AGREE   NEUTRAL   DISAGREE   STRONGLY DISAGREE

3. I believe that professional organizations of math teachers should set the standards and requirements for teaching mathematics.

STRONGLY AGREE   AGREE   NEUTRAL   DISAGREE   STRONGLY DISAGREE

4. I don't have the opportunity to exercise my own judgment in my work.

STRONGLY AGREE   AGREE   NEUTRAL   DISAGREE   STRONGLY DISAGREE

5. Math teachers regularly read journals and publications about mathematics and its applications.

STRONGLY AGREE   AGREE   NEUTRAL   DISAGREE   STRONGLY DISAGREE

6. Math teachers believe parents are in a good position to judge how well mathematics is taught in their children's schools.

STRONGLY AGREE   AGREE   NEUTRAL   DISAGREE   STRONGLY DISAGREE

7. Math teachers think that it is more important to receive continued training in mathematics than it is to receive training in effective ways to teach and manage mathematics classes.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

8. I think that the importance of teaching high school mathematics is widely recognized by others.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

9. Math teachers display dedication to their work.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

10. Math teachers think too much control over their work is exercised by people who lack mathematical expertise.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

11. In my view, math teachers should have more freedom to collectively make decisions about their own work.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

12. I think of myself first as a teacher, then as a mathematician.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

13. I feel that even with professional contacts, it is difficult to maintain enthusiasm about teaching mathematics.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

14. I believe I have a high level of competence in the subject matter of all high school mathematics courses.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

15. I believe that the final decision on the content of mathematics instruction should be made by individual math teachers.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

---

16. I believe that professional mathematics education organizations at the local level should play a vital role in changing school mathematics.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

---

17. I believe that time I spend on continued training in mathematics is well spent.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

---

18. I believe my work as a math teacher is not appreciated by most people.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

---

19. Decisions I make in my daily work should be subject to review by the chair of our mathematics department.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

---

20. Math teachers believe it is important to support professional mathematics education organizations at the local level.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

---

21. I think that the teaching of mathematics is essential in our society.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

---

22. Math teachers feel it is important to have the opportunity to meet with business and university mathematicians on an equal level.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

---

23. Math teachers feel that their contribution to society is not recognized by business and university mathematicians.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

24. High school math teachers are teachers primarily because they enjoy working with young people.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

25. I regularly attend professional meetings and dinners organized by professional mathematics education organizations at the local level.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

26. Math teachers believe that any weakening in the teaching of mathematics as a profession would be harmful for society.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

27. Math teachers think reforms in school mathematics should evolve from and be implemented through the professional mathematics education organizations.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

28. I think that local professional mathematics education organizations do not do much for the average math teacher.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

29. Math teachers in my school are able to judge how well our mathematics department is doing.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

30. Math teachers hold their own in discussions with business and university mathematicians.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

31. High school math teachers consider themselves as teachers more so than as mathematicians.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

32. In practice, math teachers are the ones who determine what is actually taught in the courses they teach.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

33. Math teachers believe they have the control that they should have over their everyday work.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

34. Math teachers feel that the public does not realize the contribution that math teachers make to society.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

35. Math teachers feel they have an important contribution to make in discussions with business and university mathematicians.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

36. Math teachers think that they should be evaluated only by other math teachers.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

37. Math teachers make decisions about their everyday work.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

38. I think district administrators should have the final responsibility for what is taught in school mathematics.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

39. I teach because I enjoy mathematics.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

40. Math teachers are the most appropriate people to make decisions about methods of instruction.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

41. I believe that because of the degree of specialized knowledge required in teaching mathematics, only math teachers are competent to judge how well other math teachers do their work.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

42. I would stay in the teaching of mathematics even if my salary were reduced.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

43. I make my own decisions in regard to my everyday work.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

Please go back and check that you have
circled a response for each item.

THANK YOU.

Urban Mathematics Collaborative Documentation Project
University of Wisconsin--Madison

Date____________________
(month) (day) (year)

Teacher Survey III

Please fill in today's date in the upper right hand corner of this booklet and your name, school, city, and state in the spaces provided below.

Name______________________________________
(first) (last)

School______________________________________

City, State______________________________________

Mathematics Courses
You Teach Currently______________________________________

Grade Level______________________________________

Please circle the letter which best describes your level of participation in your collaborative:

A. Frequent
B. Occasional
C. Never

This survey contains 65 statements designed to gather information about your opinions regarding five areas of mathematics:

I. Your Conceptions of Mathematics
II. Your Conceptions of Mathematics Teaching
III. Your Conceptions of Recommended Changes in Mathematics Curriculum
IV. Your Conceptions of Mathematics Education
V. Your Conceptions of Schooling

Please read each statement carefully, but do not spend too much time on any one item. Remember, there are no right or wrong answers. All responses will be strictly confidential. Only summary information will be shared.

Thank you for your participation in completing this survey.

Conceptions of Mathematics

The statements listed below portray a variety of viewpoints as to the nature of mathematics. Please rate each statement on a 5-point scale, according to how strongly you agree that each statement reflects your own concept of mathematics. (The number 5 indicates that you strongly agree with the statement and the number 1 indicates that you strongly disagree with the statement. A rating of 3 indicates that you are undecided whether the statement reflects your concept of mathematics.)

		Agree Strongly		Neutral		Disagree Strongly
1.	Mathematics is a process in which abstract ideas are applied to solve real-world problems.	5	4	3	2	1
2.	Mathematics is a language, with its own precise meaning and grammar, used to represent and communicate ideas.	5	4	3	2	1
3.	Mathematics is a collection of concepts and skills used to obtain answers to problems.	5	4	3	2	1
4.	Mathematics is thinking in a logical, scientific, inquisitive manner and is used to develop understanding.	5	4	3	2	1
5.	Mathematics is facts, skills, rules and concepts learned in some sequence and applied in work and future study.	5	4	3	2	1
6.	Mathematics is an interconnected logical system, is dynamic, and changes as new problem-solving situations arise. It is formed by thinking about actions and experiences.	5	4	3	2	1

7. Please write in the spaces below the numbers of the 6 above statements, in the order that they reflect your belief of what mathematics is.

____	____	____	____	____	____
Most Reflective					Least Reflective

8. Please feel free to comment on any important aspect, not mentioned above, that reflects your concept of mathematics.

____

____

____

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Conceptions of Mathematics Teaching

The following statements are sometimes cited as important goals for teaching mathematics in schools. Please rate each goal on the 5-point scale as to its importance to your teaching of mathematics. (The number 5 indicates that the goal is very important to your teaching, and the number 1 indicates that the goal is very unimportant to your teaching. The number 3 indicates that you are undecided as to the goal's importance to your teaching.)

		Very Important		Neutral		Very Unimportant
9.	To enable students to master a hierarchy of concepts and skills and to use these in solving problems.	5	4	3	2	1
10.	To provide experiences for students to know mathematics as originating in real-world situations and to have the power of using a small set of symbols to represent and solve a wide range of problems.	5	4	3	2	1
11.	To enable students to use mathematical procedures to solve problems and mathematical concepts to model both abstract and real-world situations.	5	4	3	2	1
12.	To provide students with complete understanding of the meaning(s) of mathematical concepts and enable them to communicate ideas using correct mathematical symbols, rules and reasoning.	5	4	3	2	1
13.	To prepare students for work and future study by having them master a sequence of facts, paper-and-pencil skills, rules and concepts.	5	4	3	2	1
14.	To enable students to use mathematics to explore situations in an inquisitive manner, and to offer and test hypotheses by logical reasoning, for the purpose of developing a more complete understanding of the situation.	5	4	3	2	1

15. Please write in the spaces below the numbers of the 6 above statements, in the order that they reflect your belief of what the important goals for teaching mathematics are.

____ ____ ____ ____ ____ ____

Most Reflective — Least Reflective

16. Please feel free to comment on any important aspect, not mentioned above, that reflects your concept of mathematics teaching.

____

____

____

Conceptions of Recommended Change

Some recent recommendations for high school mathematics are listed below. Please read each recommendation and rate it in terms of its importance to your mathematics curriculum. (The number 5 indicates that the recommendation is very important to your curriculum and the number 1 indicates that the recommendation is very unimportant to your curriculum. A rating of 3 indicates that you are undecided as to the recommendation's importance.)

		Very Important		Neutral		Very Unimportant
17.	Calculators and computers should be introduced into mathematics courses to enhance understanding and problem solving, and to take the drudgery out of computations. Presentation of topics needs to be revised based on fresh approaches possible with new technologies.	5	4	3	2	1
18.	Traditional high school mathematics courses need to be integrated and unified to show interrelationships across topics and applications.	5	4	3	2	1
19.	Alternative mathematics courses should be available for students who are planning not to go to college or who are planning not to take a college major with high mathematics content.	5	4	3	2	1
20.	More emphasis should be given to simple mental computation, estimation and approximation, and less to practicing lengthy paper and pencil calculation.	5	4	3	2	1
21.	More topics and techniques from discrete mathematics, statistics and probability should be introduced into the high school curriculum.	5	4	3	2	1
22.	Mathematical modeling and problem-solving should be incorporated as a central feature in high school mathematics, and should be integrated into other parts of school curricula (such as science and social studies).	5	4	3	2	1
23.	Pre-service and in-service teacher education programs need to be developed that train teachers in individual and small-group teaching, the use of technology, and research.	5	4	3	2	1
24.	Schools must adopt differential staffing patterns and career ladders for mathematics teachers by appointing master teachers to develop, coordinate and supervise new programs.	5	4	3	2	1

		Very Important		Neutral		Very Unimportant
25.	Mathematics teachers should be encouraged to become members of professional mathematical societies and to attend regional and national meetings.	5	4	3	2	1
26.	A core mathematics program should provide optional tracks and electives, and the opportunity for every student through Grade 10 to prepare for college entry.	5	4	3	2	1
27.	A state-level prognostic test in mathematics should be administered to all students in Grade 9 or 10 to determine if they are ready to pursue further math-related work or study, or if they are in need of remediation or course changes. Results of such tests would not be available for the purpose of college admission or to evaluate teachers.	5	4	3	2	1
28.	Increased funding should be made available for the development of improved, appropriate materials, diagnostic techniques and teaching strategies for remedial programs.	5	4	3	2	1
29.	Strong efforts must be made to increase the awareness of the importance of mathematics among all members of the community, especially among parents of school age children.	5	4	3	2	1
30.	A core mathematics program should be established which requires all students to study mathematics through Grade 11.	5	4	3	2	1
31.	Special efforts should be made to identify mathematically talented students, especially minorities and women, and to encourage them to pursue careers in mathematics, science and mathematics education.	5	4	3	2	1
32.	Parents should have the option of sending their children to the public school of their choice.	5	4	3	2	1

33. Please feel free to comment on any important aspect, not mentioned above, that you would recommend as a change in your mathematics curriculum.

____

____

Conceptions of Mathematics Education

Below are listed staatements pertaining to some issues and problems that mathematics teachers face with varying degrees of regularity. Please read each item carefully and rate it on the 5-point scale provided, to the extent that you agree with it. (On this scale, the number 5 indicates that you agree strongly with the item. The number 1 indicates that you disagree strongly. The number 3 indicates that your feelings are neutral towards the item.)

		Agree Strongly		Neutral		Disagree Strongly
34.	Mathematics teachers' primary responsibility is keeping order, keeping students busy and productive in the classroom, and covering all the material.	5	4	3	2	1
35.	Calculators and computers can facilitate the learning of mathematics. Hands-on experience with changing technology should be incorporated as an integral part of mathematics instruction.	5	4	3	2	1
36.	Special applications, real-world problems and extra-curricular activities must be tailored to the needs and abilities of each student to help them excel.	5	4	3	2	1
37.	Mathematics teachers must teach students to communicate using conventional mathematical signs, symbols and vocabulary.	5	4	3	2	1
38.	Mathematical analysis, interpretation and inquiry should be taught concurrently with the basic skills. Students must be taught to use mathematics to gain understanding of a variety of phenomena.	5	4	3	2	1
39.	Mathematics teachers have the responsibility to teach the requisite skills for subsequent courses.	5	4	3	2	1
40.	Mathematical skills and rules should not be taught in isolation. Mathematics needs to be discovered by students through applied problem-solving.	5	4	3	2	1
41.	Mathematics teachers sometimes have to sacrifice the broader aims of the course in order to spend more time bringing the entire class up to a minimum competency level.	5	4	3	2	1
42.	Mathematics teachers should demand strict adherence to methods and notations used in class.	5	4	3	2	1

		Agree Strongly		Neutral		Disagree Strongly
43.	It is difficult to obtain objective evidence of student mathematics achievement. The process of learning mathematics is unique to the individual, and does not lend itself readily to standardized evaluation.	5	4	3	2	1
44.	It is good for students to see mathematics teachers make mistakes. It helps them understand that making their own mistakes is part of the science of mathematical thinking.	5	4	3	2	1
45.	Mathematics is an enjoyable discipline.	5	4	3	2	1
46.	Mathematics teachers have the responsibility to teach the requisite skills for future employment.	5	4	3	2	1
47.	The results of standardized tests greatly influence what mathematics is taught.	5	4	3	2	1
48.	All students should be required to pass a minimum competency test in mathematics to graduate from high school.	5	4	3	2	1
49.	The greatest influence on my teaching of mathematics was my high school mathematics teacher(s).	5	4	3	2	1
50.	The greatest influence on my teaching of mathematics was my coursework in college and/or teacher education.	5	4	3	2	1
51.	The greatest influence on my teaching of mathematics has been my colleagues who are teachers.	5	4	3	2	1
52.	I enjoy teaching mathematics.	5	4	3	2	1

53. Please feel free to comment on any important aspect, not mentioned above, that you would recommend as a change in your mathematics curriculum.

____

____

____

____

Conceptions of Schooling

The following items are concerned with your conceptions about the purpose, functions and goals of schools in our society. Please read each item carefully and rate it according to the priority you would assign it as it relates to what you see as the overall purpose of schooling. (a 5 indicates that you would assign a very high priority to the item and a 1 indicates that you would assign a very low priority to the item. A rating of 3 indicates that you are undecided where you would assign the item.)

		Very High Priority		Neutral		Very Low Priority
54.	Schools should provide an opportunity for children to pursue their own talents, interests and creative abilities.	5	4	3	2	1
55.	School curricula should function to preserve the traditions of society and the stability of our social institutions. Schools should be accountable to their local community as to how they are achieving these aims.	5	4	3	2	1
56.	Schools should group students according to similar needs, interests and abilities, rather than according to age.	5	4	3	2	1
57.	A major role of schools is to transmit the knowledge and skills associated with different branches of learning.	5	4	3	2	1
58.	Schools must be innovative to ensure that we maintain a dynamic and expanding society.	5	4	3	2	1
59.	Schools must offset inequalities by providing special opportunities to disadvantaged students.	5	4	3	2	1
60.	Schools should be seen by students as places where they may find personal fulfillment, gain satisfaction from achieving their individual needs, and develop confidence in finding future direction.	5	4	3	2	1
61.	To make an easy transition from school to the work place, schools should be places where students develop proper work values and learn to adapt to large groups, and where rewards are seen as both immediate (grades) and future (promise of employment).	5	4	3	2	1
62.	Competition is an important component of schooling, both to motivate learning and as preparation for adult life.	5	4	3	2	1

		Very High Priority		Neutral		Very Low Priority
63.	Schools must train students to learn and apply rules, follow instructions, absorb facts and memorize detail.	5	4	3	2	1
64.	Society must decide which years of a child's life shall be spent in formal learning, teachers must be responsible for determining the appropriate time to allocate materials, and students must learn to use their study time effectively.	5	4	3	2	1
65.	Schools exist to develop students' abilities to think, solve problems and make decisions by means of thorough training in academic disciplines.	5	4	3	2	1
66.	Schools must allocate resources equally among all students, regardless of social, ethnic or other personal background.	5	4	3	2	1
67.	Schools should be places that children feel are safe havens from the streets. Children must feel comfortable with teachers, administration and other students.	5	4	3	2	1
68.	Schools should be for students who want to learn and who are willing to work, and not a social agency for attending to all the needs of school-age children.	5	4	3	2	1

69. Please feel free to comment on any important issue or problem, not mentioned above, that you feel pertains to the purpose, functions and goals of schools in our society.

UMC Documentation Project
University of Wisconsin-Madison

Date ______________________________
(month) (day) (year)

TEACHER SURVEY IV

Please fill in today's date in the upper right hand corner. In the spaces provided below, write your name, school, city, state, courses now teaching, and the grade level(s) of the students. Then indicate your level of participation in the collaborative by circling how often you participate in collaborative activities.

Name ______________________________
(first) (last)

School ______________________________

City, State ______________________________

Title of Course(s) Currently Teaching	Grade Level(s)

Level of Participation in the collaborative:

Circle One: Never Occasionally Frequently

Answer the questions on both sides of the following pages. Then return the completed questionnaire to the designated person in the envelope provided. Please seal the envelope and print your name on the outside. (The envelope will not be opened until it reaches the UMC Documentation Project at the University of Wisconsin.)

All responses will be strictly confidential. Only summary information will be shared.

THANK YOU FOR YOUR COOPERATION IN COMPLETING THIS SURVEY.

Instructions

The following questions are designed to gather information about the impressions of high school mathematics teachers regarding a variety of issues. Some items should be answered in light of the way you personally feel and behave as a high school mathematics teacher, while other items ask your perceptions of how mathematics teachers in general feel and behave.

There are five possible responses to each item. If you STRONGLY AGREE with the statement, in that it corresponds to your own attitudes or behavior, or to your impression of the attitudes or behavior of mathematics teachers in general, circle that response. Similarly, if you AGREE, DISAGREE, or STRONGLY DISAGREE with the statement, mark the appropriate response. The middle category, NEUTRAL, is designed to indicate that you have no opinion about the statement. Please answer all items, making sure that you have circled only ONE response for each item.

Circle the most appropriate response.

1. I feel out of place meeting with mathematicians from businesses and universities.

STRONGLY AGREE AGREE NEUTRAL DISAGREE STRONGLY DISAGREE

---

2. Mathematics teachers believe in the social benefits of their work.

STRONGLY AGREE AGREE NEUTRAL DISAGREE STRONGLY DISAGREE

---

3. I believe that professional organizations of mathematics teachers should set the standards and requirements for teaching mathematics.

STRONGLY AGREE AGREE NEUTRAL DISAGREE STRONGLY DISAGREE

---

4. I don't have the opportunity to exercise my own judgement in my work.

STRONGLY AGREE AGREE NEUTRAL DISAGREE STRONGLY DISAGREE

---

5. Mathematics teachers regularly read journals and publications about mathematics and its applications.

STRONGLY AGREE AGREE NEUTRAL DISAGREE STRONGLY DISAGREE

---

6. The collaborative has helped me to develop leadership qualities.

STRONGLY AGREE AGREE NEUTRAL DISAGREE STRONGLY DISAGREE

---

7. Mathematics teachers believe parents are in a good position to judge how well mathematics is taught in their children's schools.

STRONGLY AGREE AGREE NEUTRAL DISAGREE STRONGLY DISAGREE

---

8. Mathematics teachers think that it is more important to receive continued training in mathematics than it is to receive training in effective ways to teach and manage mathematics classes.

STRONGLY AGREE AGREE NEUTRAL DISAGREE STRONGLY DISAGREE

(Please turn the page.)

9. Mathematics teachers have a major responsibility to ensure that all students have equal opportunity to learn mathematics.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

10. I think that the importance of teaching high school mathematics is widely recognized by others.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

11. Mathematics teachers display dedication to their work.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

12. Mathematics teachers think too much control over their work is exercised by people who lack mathematical expertise.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

13. The collaborative has raised my awareness of equity issues concerning school mathematics.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

14. In my view, mathematics teachers should have more freedom to collectively make decisions about their own work.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

15. I think of myself first as a teacher, then as a mathematician.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

16. The collaborative has enhanced the professional lives of mathematics teachers.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

17. I feel that even with professional contacts, it is difficult to maintain enthusiasm about teaching mathematics.

STRONGLY AGREE   AGREE   NEUTRAL   DISAGREE   STRONGLY DISAGREE

18. I believe I have a high level of competence in the subject matter of all high school mathematics courses.

STRONGLY AGREE   AGREE   NEUTRAL   DISAGREE   STRONGLY DISAGREE

19. I believe that the final decision on the content of mathematics instruction should be made by individual mathematics teachers.

STRONGLY AGREE   AGREE   NEUTRAL   DISAGREE   STRONGLY DISAGREE

20. I believe that professional mathematics education organizations at the local level should play a vital role in changing school mathematics.

STRONGLY AGREE   AGREE   NEUTRAL   DISAGREE   STRONGLY DISAGREE

21. I believe that time I spend on continued training in mathematics is well spent.

STRONGLY AGREE   AGREE   NEUTRAL   DISAGREE   STRONGLY DISAGREE

22. I believe my work as a mathematics teacher is not appreciated by most people.

STRONGLY AGREE   AGREE   NEUTRAL   DISAGREE   STRONGLY DISAGREE

23. Decisions I make in my daily work should be subject to review by the chair of our mathematics department.

STRONGLY AGREE   AGREE   NEUTRAL   DISAGREE   STRONGLY DISAGREE

24. Mathematics teachers believe it is important to support professional mathematics education organizations at the local level.

STRONGLY AGREE   AGREE   NEUTRAL   DISAGREE   STRONGLY DISAGREE

(Please turn the page.)

25. I think that the teaching of mathematics is essential in our society.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

26. The collaborative has contributed to teachers assuming leadership roles.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

27. Mathematics teachers feel it is important to have the opportunity to meet with business and university mathematicians on an equal level.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

28. Mathematics teachers feel that their contribution to society is not recognized by business and university mathematicians.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

29. Mathematics teachers are teachers primarily because they enjoy working with young people.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

30. I regularly attend professional meetings and dinners organized by professional mathematics education organizations at the local level.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

31. Mathematics teachers believe that any weakening in the teaching of mathematics as a profession would be harmful for society.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

32. Mathematics teachers think reforms in school mathematics should evolve from and be implemented through the professional mathematics education organizations.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

33. I think that local professional mathematics education organizations do not do much for the average mathematics teacher.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

34. Mathematics teachers in my school are able to judge how well our mathematics department is doing.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

35. Mathematics teachers hold their own in discussions with business and university mathematicians.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

36. Mathematics teachers consider themselves as teachers more so than as mathematicians.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

37. In practice, mathematics teachers are the ones who determine what is actually taught in the courses they teach.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

38. Mathematics teachers believe they have the control that they should have over their everyday work.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

39. Mathematics teachers feel that the public does not realize the contribution that mathematics teachers make to society.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

40. Mathematics teachers feel they have an important contribution to make in discussions with business and university mathematicians.

STRONGLY AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY DISAGREE

(Please turn the page.)

41. Mathematics teachers think that they should be evaluated only by other mathematics teachers.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

42. Mathematics teachers make decisions about their everyday work.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

43. I think district administrators should have the final responsibility for what is taught in school mathematics.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

44. I teach because I enjoy mathematics.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

45. Mathematics teachers are the most appropriate people to make decisions about methods of mathematics instruction.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

46. I believe that because of the degree of specialized knowledge required in teaching mathematics, only mathematics teachers are competent to judge how well other mathematics teachers do their work.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

47. I would stay in the teaching of mathematics even if my salary were reduced.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

48. The collaborative has expanded my notion of what it means to be a mathematics teacher.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

49. I make my own decisions in regard to my everyday work.

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

Please look at each page to check that
you have circled a response for each item.

THANK YOU!

This is the final written survey that you will be asked to complete for the UMC Documentation Project. We greatly appreciate your time and effort in helping us gather the necessary information to document the development of the Urban Mathematics Collaborative Project. The information that you have shared with us will not only help us to better understand the UMC Project, but will assist others in their efforts to document similar projects in the future.

APPENDIX E

Demographic Survey 1989-90

BEST COPY AVAILABLE

Ford Foundation UMC Documentation

Wisconsin Center for Education Research
1025 West Johnson Street, Madison, WI 53706 (608) 263-4282 June 1990

DEMOGRAPHIC SURVEY 1989-90

Please provide the following information for the

PART I General

1. Population of metropolitan area served by the school district in 1989-90 ____________
2. Name of Superintendent ____________
3. Number of years in position ____________
4. Number of members on the school board ____________

PART II District Budget Information

1. Total district expenditures for the 1989-90 school year ____________
2. Projected district budget for the 1990-91 school year ____________
3. Percent of district budget funding from following sources: .... a) Federal __________ %
   b) State __________ %
   c) Local __________ %
   d) Other __________ %

PART III School Composition

1. Number of schools in the district .... ____________
2. Breakdown:
   No. __________ Senior High Schools (Grade range ________ to ________)
   No. __________ Junior High Schools (Grade range ________ to ________)
   No. __________ Middle Schools (Grade range ________ to ________)
   No. __________ Elementary Schools (Grade range ________ to ________)
   No. __________ Magnet or special design (Grade range ________ to ________)
   No. __________ Other (please specify) ______________________________
3. What percentage of students in your district
   attended private/parochial schools in 1989-90? ____________ %
   Has this percentage increased/ decreased since 1988-89? ____________

PART IV Teacher Profiles (Please provide frequency and percentage when available.)

	High School M/F	Junior High M/F	Middle School M/F	Elementary School M/F	TOTAL M/F
1. Number of teachers	___	___	___	___	___
2. Ethnicity (all teachers):					
White (Number)	___	___	___	___	___
(Percent)	___%	___%	___%	___%	___%
Black (Number)	___	___	___	___	___
(Percent)	___%	___%	___%	___%	___%
Spanish-Hispanic origin					
(Number)	___	___	___	___	___
(Percent)	___%	___%	___%	___%	___%
Asian or Pacific Islander					
(Number)	___	___	___	___	___
(Percent)	___%	___%	___%	___%	___%
Indian (American)					
(Number)	___	___	___	___	___
(Percent)	___%	___%	___%	___%	___%
Other (Number)	___	___	___	___	___
(Percent)	___%	___%	___%	___%	___%
3. Number of teachers who teach mathematics	___	___	___		
4. Ethnicity (teachers of mathematics):					
White (Number)	___	___	___		
(Percent)	___%	___%	___%		
Black (Number)	___	___	___		
(Percent)	___%	___%	___%		
Spanish-Hispanic origin					
(Number)	___	___	___		
(Percent)	___%	___%	___%		
Asian or Pacific Islander					
(Number)	___	___	___		
(Percent)	___%	___%	___%		
Indian (American)					
(Number)	___	___	___		
(Percent)	___%	___%	___%		
Other (Number)	___	___	___		
(Percent)	___%	___%	___%		

5. Salary:

a. What was the salary *minimum* in 1989-90 for teachers? ____________

What was the degree/certification requirement for this salary? ____________

____

b. What was the salary *maximum* in 1989-90 for teachers? ____________

What was the degree/certification requirement for this salary? ____________

c. What was the *average* teacher salary in 1989-90? ____________

d. What was the *average* mathematics teacher salary in 1989-90? ____________

____

e. How many mathematics teachers have tenure:

High School ____________
Junior High ____________
Middle School ____________

f. How many paid in-service days per teacher were there during the 1989-90 school year? (If this varies by subject area, please specify for mathematics teachers.)

High School ____________
Junior High ____________
Middle School ____________
Elementary ____________

g. What are the number of days of the 1989-90 school year for teachers?. . . . . ____________ days

6. Contract Negotiations:

a. What was the status of teacher contract/negotiations during 1989-90? ____________

____

____

b. When was the current contract approved?. . . . . ____________ Month/ Year

c. What period of time does the current contract cover? From ________ to ________
mo/yr mo/yr

d. What is the name of the teachers' union? ____________

e. What percentage of teachers are members? ____________ %

f. Which organization does the bargaining for the district teachers? ____________

PART V Student Information

1. What is the pupil:teacher ratio?. . . . . .High School ____________

Junior High ____________

Middle School ____________

Elementary ____________

	High School M / F	Junior High M / F	Middle School M / F	Elementary School M / F	TOTAL M / F
2. Number of students	___ ___	___ ___	___ ___	___ ___	___ ___
3. Ethnicity:					
White (Number)	___ ___	___ ___	___ ___	___ ___	___ ___
(Percent)	___ ___%	___ ___%	___ ___%	___ ___%	___ ___%
Black (Number)	___ ___	___ ___	___ ___	___ ___	___ ___
(Percent)	___ ___%	___ ___%	___ ___%	___ ___%	___ ___%
Spanish-Hispanic origin					
(Number)	___ ___	___ ___	___ ___	___ ___	___ ___
(Percent)	___ ___%	___ ___%	___ ___%	___ ___%	___ ___%
Asian or Pacific Islander					
(Number)	___ ___	___ ___	___ ___	___ ___	___ ___
(Percent)	___ ___%	___ ___%	___ ___%	___ ___%	___ ___%
Indian (American)					
(Number)	___ ___	___ ___	___ ___	___ ___	___ ___
(Percent)	___ ___%	___ ___%	___ ___%	___ ___%	___ ___%
Other (Number)	___ ___	___ ___	___ ___	___ ___	___ ___
(Percent)	___ ___%	___ ___%	___ ___%	___ ___%	___ ___%
4. Number of students who have English as a second language	___ ___	___ ___	___ ___	___ ___	___ ___
5. Number of students whose families receive AFDC	___ ___	___ ___	___ ___	___ ___	___ ___
6. Number of students in government-funded lunch program	___ ___	___ ___	___ ___	___ ___	___ ___
7. What is the student dropout rate	___ ___	___ ___	___ ___	___ ___	___ ___

How is it computed ____

8. How many high school students were enrolled in mathematics courses during 1988-89?

________________ (Number)

__________________ %

9. What are the mathematics requirements for high school graduation? ____________________

____

10. What percentage of the students go on to postsecondary education? ____________________%

11. Please list the mean score or percentile for the most important test administered district-wide in grades 9-12, during 1989-90. (If the scores from 1989-90 are not available, please list scores from 1988-89.)

Circle Name of Test: CAT SAT ACT CTBS Other ____________________

Date Administered .... Mo.______________Yr.________

Grade Level	**Verbal**	**Quantitative**	**Overall**
Grade 9	________	________	________
Grade 10	________	________	________
Grade 11	________	________	________
Grade 12	________	________	________

12. If a second test was administered district-wide in grades 9-12, please report the results below.

Circle Name of Test: CAT SAT ACT CTBS Other

Date Administered.................................... Mo.______________Yr.________

Grade Level	**Verbal**	**Quantitative**	**Overall**
Grade 9	________	________	________
Grade 10	________	________	________
Grade 11	________	________	________
Grade 12	________	________	________

Please return the completed survey in the envelope provided to:

Dr. Norman Webb
UMC Documentation Project
Wisconsin Center for Education Research
1025 W. Johnson Street
Madison, WI 53706